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Consumer BULLETIN

The Original Consumer Information Magazine
Testing and Reporting on Products since 1928

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Ball-point pens tested

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Tests of
CLOTHES DRYERS

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The truth about nylon and rayon tires

Nylon-cord tires are higher priced than rayon—are they better and stronger?

BY ANDREW J. WHITE, DIRECTOR
MOTOR VEHICLE RESEARCH INC.

TIRE ADVERTISING, of late, has stressed increased safety and strength, which manufacturers claim they have achieved by the use of nylon fiber in tire cords. No motorist, if he believed the advertising copy, could possibly reach any conclusion other than nylon must be the strongest and all-around-best tire cord made. A tire made of nylon is not only more expensive but gives the purchaser less weight of finished rubber and fabric per dollar. From an over-all standpoint, you pay more to get less, and there are likely to be some additional headaches thrown in at no charge. Many motorists have found that the nylon tires they have purchased because of persuasive advertising have given poor performance and were in no way superior, as they were claimed to be, to the tires constructed of rayon cord which they had bought previously.

It is not to be inferred that nylon as a tire cord is without merit, for nylon is a good tire material, yet it does have some inherent faults that are not found in its competitor rayon. The thrifty motorist who has seen the offerings in mail-order catalogs and at the tire dealers where he has been asked a premium price of 10 percent or more for supposedly superior tires built with nylon cord may have wondered whether he was being asked to pay more for better performance or was merely being subjected to a trading-up process of the sort prevalent in practically all marketing of goods. The answer is that in a good many cases he has paid more but got less for his money.

If a motorist owns a quiet-running car, he will be most unhappy with the "morning thump" the nylon tires will cause, particularly in cold weather, with the effect of turning a quiet-running car into a noisy and rough-riding one. One might refer to the phenomenon as uncontrolled "thermal-set" under temperature and load. When a motorist parks his car overnight, each tire is carrying a load of approximately 1000 pounds, and this weight is acting through the tire cord to the tread areas contacting the ground or roadway. Under this heavy load, the cord and tread take a set and the part of the tire which is in contact with the pavement or the garage floor becomes flattened. With this flat spot, there is a thump each time the wheel turns, when the tire is used after overnight parking. The thump is more pronounced when the temperature is low, can be very annoying, and will not disappear until some miles of driving have warmed the tire.

There is a basic engineering principle to the effect that where there is noise there is wear. One may assume that the flat spots will cause the same sort of wear in nylon tires that occurs in tires that are out of balance, and this wear will be concentrated wherever the flat place of the tire happens to fall; this means, of course, that in due time the extra wear will be spread over the whole surface of the tire tread.

Makers of nylon tires claim superior resistance to blowouts and damage due to impacts against curbs, projections in the road, and the like. Actual test of the claims of superiority for nylon tires in this respect have been carefully made under controlled conditions in comparison with tires built with rayon cord. These tests indicate that nylon tires do not have the claimed superiority. In fact, the two kinds of tires were found to be pretty well matched in performance under severe test conditions. Both kinds of tires survived 20-, 40-, and 60-mile-an-hour impacts against a granite block rising 6 inches above the road surface, equivalent to driving at 60 miles per hour over a curb of that height. After the impact tests, each tire was carefully dissected and the cords examined. No failures in a single cord were found in either type of tire. It is pretty evident that neither rayon nor nylon can claim superior resistance to damage by impact against road projections and other objects in the path of the tire travel. Further tests did not show any basis for claims of superior impact resistance of nylon tires under hot weather conditions or tires heated by fast driving.

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The Consumers' Observation Post

PROPER DIET CAN IMPROVE EYESIGHT in some cases. Nearsighted children who received extra animal protein over a period of six months to a year showed actual improvement in some cases and a rate of visual deterioration that was much less than a control group whose diet was not changed. According to the report of this experiment by P. A. Gardiner, Research Fellow in Ophthalmology, Guy's Hospital, London, in The Lancet, there was actual improvement in most of those children over 12 years of age who took the greatest quantity of animal protein. He reported that the diet followed by 43 percent of the children reached a level of animal protein intake of over 9 percent of the calorie intake and these did better than the rest in improving myopia. He concluded that, whatever may be the cause of acquired myopia in children and adolescents, its course can be beneficially modified by dietary means.

* * *

LAWN TREATMENTS for dandelions, plantain, and other broad-leaf weeds are most effective in the fall. Then the lawn grasses will have an opportunity to spread into the vacant spaces before the next crab-grass season, according to the Ohio State Experiment Station. When such weeds are treated with 2,4-D or dug out in the spring, the vacant space is all too likely to fill with crab grass. A good heavy sod of lawn grasses will force the crab-grass plants to stick up so that they are easy to pull by hand.

* * *

CARPETS AND RUGS are sometimes ruined by permanent brown stains. Just what causes this type of discoloration has been discovered by Colonel James W. Rice of the National Institute of Rug Cleaning. Frequently the stain appears when moisture absorbed by rugs and carpets dissolves impurities in the backing yarns, often present in the sizing. As the moisture in drying rises to evaporate from the tufted ends of the carpet or rug, it takes some of the stain substances with it to the surface, creating a discoloration. To avoid disfiguration, wet or damp spots on rugs should be dried immediately, according to advice given by the National Institute of Rug Cleaning, by placing white absorbent tissues or white paper towels on the area and blotting it thoroughly, then placing the back of the rug in a position that an electric fan will blow directly on it to hasten drying, or by blowing air from the vacuum cleaner against the spot. The N.I.D. reports that color changes in rugs have sometimes been caused by a particular do-it-yourself method, involving water and a detergent agent, when too much water has been used instead of dry foam only as called for in the directions for use of the commercial preparation.

* * *

THE USE OF ANTIBIOTICS on farm animals without the advice of veterinarians presents a potential health hazard to human beings. Several experts in the field have expressed alarm at overuse of antibiotics by farmers in treating dairy cows. The presence of these drugs in the milk has an adverse effect on the human system, lowering the body's resistance to diseases. Their use on animals tends to create more dangerous disease bacteria of highly resistant strains, the most dangerous of which is a staphylococcus which is often lethal to human beings. One recommended solution is to ban completely any antibiotic used for human injection from use in animal treatment of any kind.

* * *

ONE REASON FOR THE POPULARITY of small foreign automobiles is their economical use of gasoline. The Wall Street Journal reports that the gas mileage of American cars has been in a more or less steady decline since 1950 when the average mileage per gallon was 17. It had dropped to 14.4 miles in 1956 and edged up only slightly in 1957.

THE TERM "WASH AND WEAR" is being applied indiscriminately to almost every type of garment. The effect is achieved by a resin treatment of botton and rayon fabrics or blends of both fibers, but as P. J. Fynn, Director of J. C. Penney Company Research and Testing Laboratory, pointed out in a speech last spring, there is more to wash-and-wear than just putting a resin finish on standard washable fabrics. The resin treatment weakens the textile strength of such fabrics, particularly under a hot iron. Garments made from a treated fabric of this type may pull apart at the seams, turn yellow and brown under laundering, and tear easily. Mr. Fynn points out that it is necessary to use a heavier fabric construction to overcome the inevitable loss of textile strength, abrasion resistance, and tear strength caused by even the best of the resin finishes.

* * *

HAULING A BOAT TRAILER SAFELY requires some know-how. The American Automobile Association lists some suggestions that the boat haulers should follow in order to prevent highway accidents, including: driving at a slower speed when hauling a trailer to allow for the longer stopping distance required, allowing extra room for the trailer in turning corners and in pulling out to pass, taking sharp turns at a slow speed, making certain that the trailer is tightly hitched (preferably by a safety chain), using dependable stop lights and taillights on the back of the trailer, putting reflecting tape on the back of the trailer or boat, and using plainly visible hand signals in turning.

* * *

PENNY PINCHING IS BEING PRACTICED by many manufacturers in order to keep costs down and avoid price increases. Some of these economies have the effect of short-changing the consumer. Manufacturers of low-price clothing, for example, are reported by the New York Times to be reducing the number of buttons, trimmings, and ornaments on their garments. Several meat processors are reported to be decreasing the diameter of their frankfurters and increasing the number in a pound from eight and ten to twelve. That enables the housewife to get more servings from a pound and creates the illusion that she is getting more for her money.

* * *

COAL-TAR DYES are not permitted to be used in eyebrow or eyelash preparations because of the potential hazards involved. Two large cosmetic companies, however, have asked the Food and Drug Administration for amended legislation so that certain so-called harmless coal-tar dyes may be used in eye shadow, eyebrow pencils, and eyelash make-up. Women who use these preparations may feel reassured to learn that the F. & D. Admin. has turned down such requests on the ground that they were not supported by scientific evidence to show harmlessness of coal-tar dyes for such usage.

* * *

GREATER USE OF GREEN HOUSE PLANTS will make an effective contribution to the attractiveness of home interiors. To get the full benefit of living plants, however, consideration needs to be given to proper climate or environment, advises Mr. Karl Linn, landscape architect. Mr. Linn points out that plants with vigorous foliage that are at first so attractive drop their leaves and become spindly when little attention is given to their needs in respect to light, temperature, and humidity. They should not be placed in front of radiators or air conditioners, or in dark corners. One of the most important factors for plant survival, according to Mr. Linn, is adequate atmospheric humidity which, whenever possible, should be supplied by a humidifier incorporated in the plant container. He also points out that the secret of proper plant maintenance indoors is not to force but to retard their growth, keeping them in a temperature range of 70 to 75°F in the daytime, 60 to 65°F at night.

(The continuation of this section is on page 35)

Consumer Bulletin

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Listings usually are arranged in alphabetical order by brand name (not in order of merit) under each quality or performance rating. A numeral 1, 2, or 3 at the end of a listing indicates relative price, 1 being low, 3 high. Where the 1, 2, 3 price ratings are given, brands in the 1, or least expensive group, are listed alphabetically, followed by brands in price group 2, also in alphabetical order, etc. A quality judgment is wholly independent of price.

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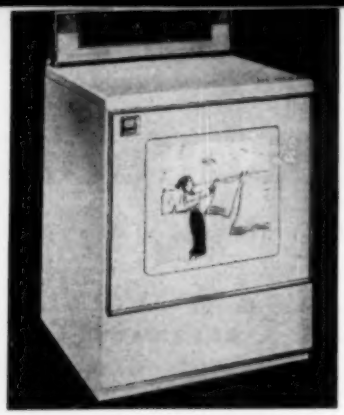


Clothes dryers—I

A discussion of advantages, limitations, and operating characteristics, with ratings of dryers that use electricity as their source of heat

ANYONE who has used a clothes dryer will agree that it has an assured place in the home laundry. With a dryer, any article or garment can be dried any hour of the day and on any day of the year regardless of the weather. Large or heavy articles, such as blankets, spreads, and throw-rugs, can be dried relatively quickly in a dryer—and most conveniently—with a minimum amount of wrinkling and stretching. Towels—bath and face—are a pleasure to use when dried in a dryer.

As with most electrical appliances, a dryer can present certain problems in use. It can contribute to a change in shape of an article of clothing—men's T-shirts, for example—or the deterioration of elastic, such as that in women's undergarments. A dryer can and surely will, if the controls are not set properly, or if too many garments are dried at a time, produce more wrinkles in a square inch of fabric than one would care to count. Furthermore, these wrinkles will often defy removal by any easy, practical means.

In order that there should not be too many pages in a single Bulletin devoted to a subject that is of interest to many, but not all of our readers, we have divided our report on tests of clothes dryers into two parts. The first presents a general discussion of both electric and gas dryers, so that the prospective purchaser may judge which is likely to be most suitable for her needs. Included with this discussion are the results of the tests, with ratings, of 15 electric dryers.

Reports of tests on 8 gas dryers, with ratings, will appear in a forthcoming issue of Consumer Bulletin.

Types of dryers

Before buying a dryer, the consumer should become familiar with the several types available and then select a brand from among that type which suits his circumstances best.

115 or 230 volts: Many dryers can be installed to operate on either 115 or 230 volts. A 230-volt supply means, of course, that 3-wire service will have to be installed if it is not already present in the home, and the expense to the homeowner will be considerable in most such cases. Operation on 115 volts requires merely plugging into an existing electrical outlet of sufficient capacity. Each has certain advantages. Many dryers are more efficient on 115 volts, i.e., require less electric energy and thus dry the clothes at lower over-all cost. The 115-volt dryers do not reach as high a drying temperature as do those operating on 230 volts, but the low-voltage dryers require from two to three times as long to dry a full load of clothes. In many instances the drying time will be 90 minutes or so rather than the 30 to 35 minutes required in most 230-volt dryers. The longer time means much more tumbling of the clothes and that, of course, increases the wear on the fabrics. There is another advantage to high-speed drying—it permits drying clothes in about the same time a washing machine takes to wash them; hence no waiting time if more than one load is washed and dried.

Moisture discharge: The way in which the dryer gets rid of the moisture which evaporates from the clothing being dried warrants consideration by the prospective purchaser. Three methods are used: (1) venting into the room or out of doors; (2) condensing the steam with cold water; (3) combination venting into the room and collecting some of the moisture in a tray.

Dryers which are designed to be vented should by all means be installed so that the discharged moisture is directed out of doors. If outdoor discharge of the moisture through a vent pipe is not possible, the prospective buyer should buy a

dryer that uses cold water for condensing the steam. With the latter type, it will be necessary to install a cold-water tap and drain, and expect to use something like 20 gallons of water for each load of clothing. Also, the disposal of this water, particularly into a septic tank or cesspool, may present problems.

In the third method, some of the steam is condensed by being passed through a number of metal tubes which are cooled by room-temperature air. The condensed water is collected in a tray. Actually, only a fraction of the total steam is cared for in this way. The larger percentage of moisture is discharged into the room. This type of dryer might be the solution for someone if neither the vented nor cold-water condenser type can be used. It will remove at least some of the water without passing it into the room, and, therefore, reduce to some extent the undesirable discharge of considerable amounts of moisture into the home.

Installing a vent for a dryer is often a bother and will, of course, add to the cost of installation, but it will avoid problems which arise from overmoist conditions in the home, especially the peeling of interior paint, loosening of veneers, rusting, and addition to discomfort during hot, humid weather. The amount of water removed from an average load of clothes is very large, amounting to about six pounds or ¾ gallon. Considering that most families will wash and dry four to six loads in a week, use of an unvented dryer means that three to four or more gallons of water will be released into the air of the room. (The normal content of a room 10 x 10 x 8 feet at 80°F and 85 percent relative humidity, which corresponds to a high degree of moisture in the air in summer, is only about one pint.)

Operation

All dryers can be set to shut off after a predetermined period of running. Several electric dryers also provide controls which will shut off the machine when the clothes have become dry.

Manually-set or automatic shut-off: An automatic device to shut off the dryer when the clothes are dry (determined by temperature rather than time) seems a good idea and is attractive to the homemaker. However, tests have indicated that these dryers are not fully satisfactory. In every instance observed by Consumers' Research, in a dryer set for this type of automatic shut-off the clothes became too dry. This system does, however, have the advantage of assuring that the machine will not run for much longer than is needed after the clothes have become thoroughly dry, as might happen if the timer had inadvertently been set for too long a drying period.

Electric or gas

Homemakers who have both electric and gas services and have no particular preference for one or the other may have some difficulty in deciding whether to buy an electric dryer or one which burns gas. Generally speaking, the type of "fuel" used for heating the air within the dryer will have no effect on the clothes as to shrinking, stretching, discoloration, or time required to dry, so there is no need to consider this. On the other hand, cost of operation is often important, and there will be a sizable difference in the operating costs between electricity and gas, favorable to gas.

The actual cost to operate either an electric or gas dryer will vary with local utility rates. Tests, however, have indicated that an electric dryer will use about three kilowatt-hours to dry a standard 8-pound load, corresponding to about 7 cents with electricity at 2½ cents per kilowatt-hour. Gas dryers consumed about 11 to 12 cubic feet of natural gas and about 1/7 kilowatt-hour of electricity for an equivalent load, corresponding to about 2 cents for gas and about ½ cent for electricity (with gas at 0.16 cent per cubic foot and electricity at 3½ cents per kilowatt-hour). Over a period of a month, the cost for operating a dryer in most homes, estimating five loads per week, would be about $1.50 for an electric dryer and 55 cents for a gas dryer.

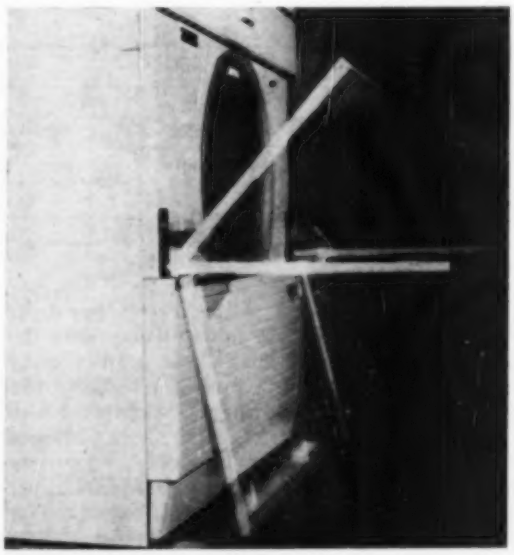


Figure 1

The door on the Norge (gas) dryer can be used in any one of three open positions. In the top position, it can be used as a clothes chute; in the horizontal position, as a shelf for folding or holding clothes; and in the low position, it permits placing a basket or other container under the dryer opening.

Name	Model No.	Volts	Type	Dimensions W	H	D	Drum volume, cu. ft.	Time to dry load, min.	Control setting	Drying range, °F from	to	Highest temperature reached, °F	Electricity, kwhr. per load	Comments
Blackstone	DEA-50	230	vent	26	39	26	4.3	30	High	115	120	175	2.9	
								55	Low	95	100	160	2.6	
		115						85	High	—	85	—	2.5	
Easy Regent	DDH-E	230	vent	27	43	27	4.9	25	High	105	120	210	2.4	Timed
								50	Med.	—	—	150	3.6	Automatic "Heavy"
								30	Med.	—	—	160	3.1	Automatic "Normal"
		115						80	High	70	80	125	2.4	
Frigidaire	DI-58	230	vent	27	44	27	5.8	35	Norm.	—	125	240	2.8	
								35	Del.	—	120	240	2.8	
		115						90	Norm.	85	90	175	2.6	
Frigidaire	DCI-58	230	air cond.	30	44	27	5.8	45	High	—	180	225	3.4	
								45	Med.	160	175	205	3.2	
								70	Low	140	150	180	3.1	
								110	Del.	115	135	150	3.1	
Hamilton	4ES	230	vent	31	44	27	5.2	40	Cotton	120	150	175	2.9	
								50	Wool	110	140	170	2.7	
								70	Knit	100	110	150	2.8	
								90	Blends	105	125	130	2.0	
		115						120	Cott.	—	—	—	—	Timer Max. 85 min.
Hotpoint	10LB45		vent					Failed Electrical Test						
Hotpoint	10LC45		water cond.					Failed Electrical Test						
Kelvinator	DEH-5L	230	vent	27	42	29	4.8	30	On	—	125	170	2.7	
		115						80	On	—	85	155	2.2	

Med.—Medium; Norm.—Normal; Del.—Delicate; Cott.—Cotton.

One should, however, realize that a gas dryer will be priced about $30 to $50 higher than the corresponding electric model, and a great many loads of clothes will have to be dried to save this amount. Assuming a saving of 4½ cents per load with gas as the fuel, one must dry about 650 loads to recover $30, and 1100 to recover $50. In terms of time, it would take from 2½ to 4 years of use in the average home to recover the extra outlay required for a gas-burning dryer.

Gas dryers, in general, do not offer the varied selection of drying temperatures possible on electric dryers, but, on the other hand, one may question the need for some of the complex controls provided with electric models. Some of these are no doubt provided for sales appeal, rather than because they are important to the user. Actually, there is little need for more than a "low" and a "high" heat setting besides a no-heat setting. A gas dryer *must* be vented *separately* to the outdoors to exhaust the gases of combustion—which are highly poisonous—and along with these, the moisture evaporated from the clothes.

Performance

In past models, most 230-volt electric dryers required ¾ of an hour to remove the water from an average load of clothes, with drying temperatures around 200°F or higher. Today, a number of dryers achieve the same results in about ½ hour,

Name	Model No.	Volts	Type	Dimensions W	H	D	Drum volume, cu. ft.	Time to dry load, min.	Control setting	Drying range, °F from	to	Highest temperature reached, °F	Electricity, kwhr. per load	Comments
Maytag	641 C	230	vent	32	43	28	4.6	35	Reg.	130	150	195	3.0	
								35	Wash 'n Wear	130	150	195	3.0	
		115						80	Reg.	85	90	130	2.5	
Maytag	641 W	230	water cond.	32	43	28	5.1	50	Reg.	145	160	180	3.1	Uses approx. 1 gal. cold water each 3 min. running
								65	Wash 'n Wear	130	145	155	3.1	
								85	Del.	110	125	140	3.0	
		115						105	Reg.	—	110	170	3.3	
Norge	ED-20	230	vent	31	44	27	5.7	30	Super Fast	—	125	155	3.2	
								40	Med.	—	105	155	3.0	
								65	Lo	—	90	135	2.5	
		115						80	Super Fast	—	80	115	2.5	
Philco-Bendix	DE-688	230	vent	30	43	27	5.7	30	On	—	115	180	2.9	Timer Max. 50 min.
		115						80	On	—	80	120	2.4	
RCA Whirlpool	ED-91	230	vent	29	42	26	5.0	35	Reg.	115	125	150	3.2	Timed
								60	Reg.	115	125	150	4.3	Automatic
								35	Light	115	125	150	3.1	Timed
								45	Light	115	125	150	3.4	Automatic
								35	Del.	90	125	135	3.0	Timed
Speed Queen	107	230	vent	30	41	29	4.3	30	Hi	—	130	215	2.6	
								90	Lo	—	85	155	2.5	
Westinghouse	D-110	230	vent	31	44	29	5.3	35	Reg. Time	170	220	280	2.8	Timed
								40	Reg. Dry	170	275	275	3.4	Automatic
								90	Lo Time	—	110	145	2.4	Timed
		115						100	Lo Time	—	110	—	2.6	Timed

Reg.—Regular; Del.—Delicate; Med.—Medium.

with temperatures under 175°F. The lower temperature and shorter tumbling time favor longer life of the clothes, reduce wrinkling, and permit prompt drying with consecutive loads. The least amount of wrinkling occurs when the washed load is dried for 25 to 30 minutes at a maximum temperature of about 175 degrees, followed by a 5- to 10-minute cooling-off period while tumbling continues.

Successful use of a dryer is not achieved as easily as some may suppose. The homemaker must exercise a certain amount of judgment in choosing the correct number of pieces, the right grouping of fabrics, and selecting the right drying time. The correct time is most important, for the clothes should not be too dry or too damp, yet those that must be ironed must retain sufficient moisture for proper ironing. Even checking the clothes regularly by feeling them with the hand will not give assurance that the clothes will be "just right" when removed from the drum, but it is more likely to prevent extreme overdrying of the clothes than setting the timer and permitting it to run without checking from time to time. As mentioned previously, prolonged tumbling causes excessive abrasion resulting in wear, while long periods of drying at elevated temperatures cause the fibers to become too dry and help set wrinkles. The successful operation of a clothes dryer, even the most efficient clothes dryer,

Figure 2

The Norge Model DG-24 (gas) dryer combines a big opening and a platform door—both desirable for convenient loading and unloading.

depends on the judgment and experience of the operator.

The homemaker who is planning to buy a clothes dryer should also give serious thought to the size of the drum, since this will have a bearing on the size of loads that can be dried without introducing more than normal wrinkling. The drum size is important particularly to anyone whose habit it is to prepare loads consisting of more than the usual number of large pieces, such as sheets, etc., or who often washes and dries loads larger than normal size. Among the 23 dryers tested (15 electric and 8 gas), drum volumes ranged from 4.3 to 5.8 cubic feet. The difference of 1.5 cubic feet from the smallest to the largest is significant, for the larger drum will handle almost two pounds more of clothes without being overloaded. The housewife owning a dryer having a drum approaching the smaller size is much more likely to have trouble with excessive wrinkling of the clothes, unless she reduces the size of the loads proportionately.

While many manufacturers state the size of loads their dryers will handle, none give the actual volume of the drum, and a number even exaggerate the size of load their dryers will hold for most satisfactory drying. The best way to determine what size (bulk) load the dryer will hold without introducing more than reasonable wrinkling is through trial and error.

The ratings of electric dryers which follow are based primarily on performance in drying. In the listings of a number of dryers, however, are comments which describe certain characteristics and disadvantages of the dryers; the potential buyer is advised to study these comments and take them into consideration in making her selection.

The accessibility of the electric light bulb for lighting the inside of the drum might seem unimportant when buying a dryer, but the trouble involved in replacing a bulb that has burned out could become a source of annoyance and expense. On a number of dryers, the electric light bulb cannot be replaced unless the backplate of the machine is removed. This means the dryer must be disconnected from the circuit, moved away from the wall, and a dozen or so screws removed; while this is a simple job, it is one for which many will need to call a serviceman. On dryers that have light bulbs so located that they can be reached and replaced readily from the front of the machine, no comment is made in the listings; in cases where the lamps are not readily accessible, the fact is mentioned.

Another point in the design of a dryer, perhaps minor to the manufacturer but *extremely* annoying to the homemaker, is reflected in the problem of loading and unloading a dryer. With dryers having their doors hinged at the side, pieces of clothing will fall out on the floor. Only two makes of

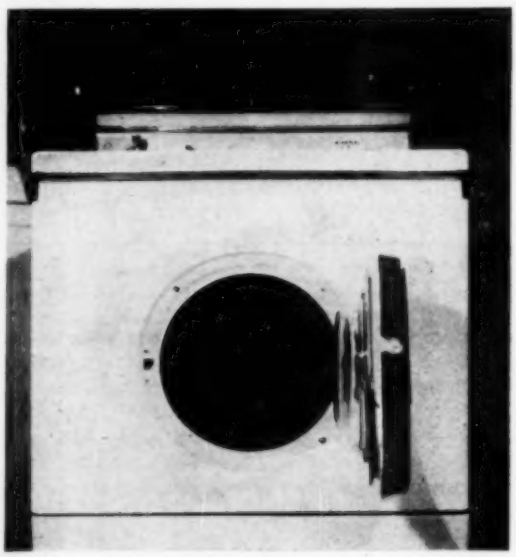


Figure 3

Clothes that drop to the floor while being placed into or removed from the drum of a dryer that has its door hinged at the side can exhaust one's patience. The opening on the Philco-Bendix dryer, small to begin with, is even more than usually annoying in this respect because of the glass dome in the door which obstructs the opening and interferes with loading and unloading.

dryers covered in this report, *Norge* and *Westinghouse*, have their doors hinged at the bottom so that the doors can be used as platforms, thus making it possible to avoid dropping clothing to the floor during loading and unloading. The door arrangement on the *Norge* was particularly good, in that it could be opened at angles of 45 degrees, 90 degrees, and in a dropped position (see Figure 1).

Most manufacturers, while wiring their dryers for operation on either 115 or 230 volts, actually intend them to be installed in the home for operation on 230 volts. This is specially evident on the *Hamilton* and *Philco-Bendix*, as the maximum time the timers could be set on these two dryers fell short of the time required for drying a normal load on the lower voltage.

Unless otherwise mentioned in the listings, the dryer listed is of the vent type and can be installed to discharge the moisture indoors or out of doors. Only three of the dryers in the test were of another type; two, *Maytag* and *Hotpoint*, condensed the steam by water, and one, *Frigidaire*, condensed some of the steam by cooling with air from the room. All dryers had painted enamel drums except as noted in the listings.

Safety tips and hints

1. Keep children away from the dryer at all times to avoid accidents and even death.

2. Dry only items that have been washed in water. Never dry articles that have been dry cleaned, or sponge or foam-rubber articles. Foam rubber is subject to spontaneous combustion at dryer temperatures. Don't dry an electric blanket in a dryer.

3. Be sure dryer is grounded to a cold-water pipe.

4. Dryer vent pipe should never be connected to a chimney—accumulation of lint can cause fire or obstruction in chimney (potentially deadly if the dryer is heated by gas).

5. Clean lint screen after each drying operation and vent pipe regularly to maintain peak efficiency and avoid risk of fire.

Electric

A. Recommended

Hamilton, Model 4E8 (Hamilton Mfg. Co., Two Rivers, Wis.) $280. 230 or 115 volts. Dryer uses 3-in. vent instead of the common 4-in. Replacement of the drum light required removal of the backplate of the dryer (15 screws). The *A-Recommended* rating applies only if the dryer is used on 230 volts. This model is not recommended for 115 volts, as maximum timer setting was considerably short of time required to dry a full load of clothes at the lower voltage. Drum was of galvanized metal.

Kelvinator, Model DEH-5L (Kelvinator Div., American Motors Corp., Detroit) $200. 230 or 115 volts. Lint screen assembly is difficult to replace in correct position. Dryer has large opening for convenient loading, but size of drum is smaller than average. No light in the drum.

Maytag, Model 641W (The Maytag Co., Newton, Iowa) $300. 230 or 115 volts. This dryer uses cold water to dispose of the evaporated moisture. Replacement of drum light required removal of backplate (10 screws). Drum was finished in porcelain enamel.

Norge, Model ED-20 (Norge Sales Corp., subsidiary of Borg-Warner Corp., Merchandise Mart Plaza, Chicago 54) $220. 230 or 115 volts. Large door opening for convenient loading and unloading.

Philco-Bendix Custom, Model DE-688 (Philco Corp., Philadelphia) $300. 230 or 115 volts. Dryer vibrated excessively and was noisy. Door opening judged small (glass dome of door also tends to interfere with loading). Replacement of the drum light required removal of the backplate of the dryer (9 screws). The *A-Recommended* rating applies only if the dryer is used on 230 volts. Not recommended for 115 volts as maximum timer setting was considerably short of actual time required to dry a full load of clothes at the lower voltage.

RCA Whirlpool Imperial Mark XII, Sales No. ED-91 (Whirlpool Corp., St. Joseph, Mich.) $320. 230 volts. This dryer was relatively noisy in operation. Replacement of the drum light required removal of the backplate of the dryer (13 screws). The *A-Recommended* rating applies when this dryer is used with manual controls rather than the automatic shut-off controls. (See text for discussion on overdrying that occurs when automatic-shut-off controls are used.)

B. Intermediate

Blackstone, Model DEA-50 (Blackstone Corp., Jamestown, N.Y.) $200. 230 or 115 volts. No light in drum. A good dryer except that exhaust air and moisture leaked from around the venting plate on back of dryer, and steam condensing on inside of door flowed down the front of the dryer. Both conditions would be objectionable to many homemakers. Drum was one of smallest in size of the dryers tested (see text).

Easy Regent, Model DDH-E (Easy Laundry Appliances Div., The Murray Corp. of America, Chicago 11) $280. 230 or 115 volts. Air temperature reached in the dryer was 190°F on medium setting and over 200°F on high when timer dial was set (see text). Automatic shut-off controls (see text for discussion of over-

drying). Drum light replaceable through hole in backplate. Drum size was smaller than average.

Frigidaire Custom Imperial, Model DCI-58 (Frigidaire Div., General Motors Corp.) $320. 230 volts. Drum light replaceable through backplate (2 screws). This dryer cannot be vented but is designed to condense the steam by contact with condenser tubes cooled by flow of air from the room; the steam so condensed is collected as water in a tray located beneath the condenser or is disposed of through a hose into a floor drain. By this method about 30% of the water removed from the clothes was condensed in the tray and about 70% was discharged into the room. Where it is impracticable to vent outside or use a water-condenser-type dryer, the *Custom Imperial* would have an advantage since it would reduce the amount of moisture discharged into the room, as compared with an inside vented dryer. Drum was finished in porcelain enamel.

Frigidaire Imperial, Model DI-58 (Frigidaire Div., General Motors Corp., Dayton, Ohio) $250. 230 or 115 volts. No light in the drum. Lint collected around vent holes on inside of door. Air temperature reached in the dryer was in excess of 200°F (see text). Drum was finished in porcelain enamel.

Maytag, Model 641C (The Maytag Co.) $270. 230 or 115 volts. Lint filter was ineffective. Size of drum is smaller than on most other makes. Air temperature in the dryer reached 195°F on high setting. Drum was finished in porcelain enamel.

Speed Queen deluxe, Model 107 (Speed Queen Div., McGraw-Edison Co., Ripon, Wis.) $220 to $245. 230 volts. Dryer equipped with "Start" button that must be depressed after the timer is set to start the dryer operation. The door has magnetic latches and is easily opened. Both these features are outstanding from the safety standpoint, particularly where there are young children in the home. Drum is made of stainless steel, which is an advantageous feature, but the drum was one of the smallest in size of the dryers tested. (Only 4.3 cu. ft.—see text on drum size and its influence on wrinkling.) The air in the dryer reached a temperature in excess of 200°F on high setting.

Westinghouse Custom Imperial, Model D-110 (Westinghouse Electric Corp., Major Appliance Div., Mansfield, Ohio) $280. 230 or 115 volts. No light in the drum. Had "platform door" (see text), convenient for loading and unloading. Air in the dryer reached a temperature well in excess of 200°F on high setting. Glass in door became much too hot to touch (above 150°F).

C. Not Recommended

Hotpoint, Cat. No. 10LB45 (Hotpoint Co., Div. of General Electric Co., Chicago 44) $300. 230 or 115 volts. Dryer failed electrical tests. Excessive shock hazard present, leakage current over 5 ma. (milliamperes).

Hotpoint, Cat. No. 10LC45 (Hotpoint Co.) $320. 230 or 115 volts. Dryer failed electrical tests. Excessive shock hazard present, leakage current over 5 ma.

Off the editor's chest

(*The beginning of this article is on page 38*)

portrayal, we will give the picture no higher than a B rating at best since we believe the picture will have only a limited or specialized appeal. In the light of family concern for sound ethical values, we endeavor to appraise the presentation as suitable for young people and children on the basis of reviews by the National Legion of Decency and Parents' Magazine, together with the Film Estimate Board of National Organizations which from time to time makes a "wiggle test" to determine whether or not a picture is of particular interest to children. Sometimes a picture may be unobjectionable for children, but does not sustain their attention, such, for example, as lavish musicals and pictures that lack action. Some children apparently enjoy horror pictures while others are emotionally disturbed and unable to sleep after viewing them. On this point, our ratings may need to be re-evaluated in individual cases by the parents who will want to take into consideration their own children's attitudes and behavior.

Occasionally we have been asked whether we were justified in devoting two pages to ratings of motion pictures when so few people go these days. On the other hand, we are assured by a sizable number of readers that, when they *do* go to a movie, they want our ratings, to help them make a selection of what to see.

Apparently many more than CR subscribers are showing considerable discrimination in their selection of what pictures they will go to see. Now that the industry has begun to recognize this fact publicly, perhaps we shall see an improvement in the pictures shown in neighborhood theaters. It has never been more obvious that what the motion picture industry needs is better pictures. Parents would be particularly grateful to have a good selection of pleasant, interesting family pictures offered at week ends.

Today's ball-point pens write more evenly, and the refills afford larger amounts of writing than those made 10 years ago. Most important of all, the writing is more nearly permanent—less subject to fading.

REPORTS of tests of the first ball-point pens marketed in this country appeared in CONSUMERS' RESEARCH BULLETIN in 1946. As improvements were made in the writing qualities, and prices came down from $10-$20 to $1 and less, sales of ball pens started to soar. The number of ball pens sold increased more than six times from 1951 to 1957. The trade has estimated that ball pens will outsell regular fountain pens 11 to 1 next year.

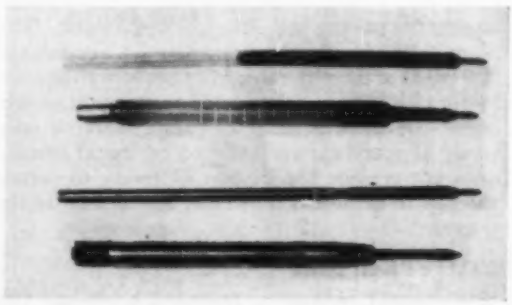
Certain disadvantages persist in spite of the ingenuity and inventiveness of a number of manufacturers, but nevertheless ball pens have some aspects of convenience and adaptibility which make them better for many purposes than regular fountain pens. One advantage of a ball pen is that it doesn't require frequent refilling—it may go for a year or more without refilling if it isn't used a great deal—and, second, it is usually ready to write immediately when touched to the paper, whereas an ordinary fountain pen may require coaxing, or may often even be incapable of writing if unused for a few weeks without being cleaned out and refilled.

Absence of shading in writing of a ball pen impairs greatly the characteristic qualities of a person's handwriting and makes forging a signature relatively easy. It is therefore wise to acquire the habit of writing and signing checks and legal papers with a regular fountain pen or one of the desk pen sets that uses ordinary writing ink, instead of a ball-point pen.

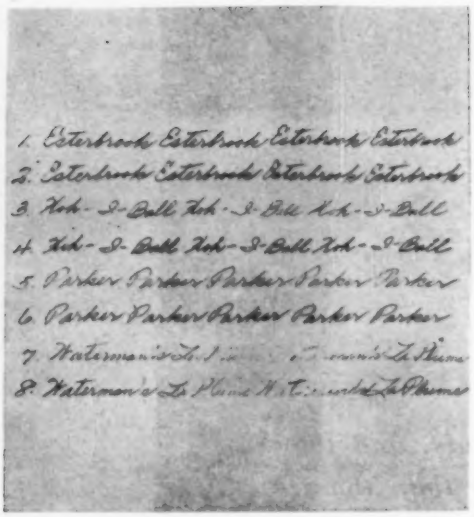
In the early days of ball-point pen inks, fading was so rapid that the writing would almost disappear in a matter of a few days of exposure to strong light, and sometimes perceptible fading occurred within a few hours. While this serious fault has now for the most part been corrected, at least as to the blue inks, some bright colors are still susceptible to fading when exposed to strong light; one red ink, for instance, faded out almost completely in a relatively short time.

Retractable-tip ball pens that will be satisfactory for most uses can be bought for around $1. Even the inexpensive *Scripto* at 29 cents, the *Ferber "49'er"* at 49 cents, and the *Wearever Miracle* at 50 cents have the push-button feature.

Fine ball points have certain advantages over medium and broad points. The writing looks cleaner and less ragged, and more words can be



Two metal ball-pen cartridges are shown at the bottom, two plastic cartridges above. A transparent plastic cartridge has the advantage that one can judge how much ink is left, and buy a refill before the ink is completely exhausted.


1. Esterbrook Esterbrook Esterbrook Esterbrook
2. Esterbrook Esterbrook Esterbrook Esterbrook
3. Koh-I-Ball Koh-I-Ball Koh-I-Ball
4. Koh-I-Ball Koh-I-Ball Koh-I-Ball
5. Parker Parker Parker Parker Parker
6. Parker Parker Parker Parker Parker

Several ball-point cartridges in Consumers' Research tests wrote legibly and with reasonable continuity of line over oily streaks on writing paper while others did not. The oily area is the slightly darker band running from top to bottom in the picture. (Lines 1, 3, 5, and 7 were written with ball-pen cartridges with fine points, and lines 2, 4, 6, and 8 with medium-point cartridges.)

written in limited space than with the blunter points. Some ball-pen cartridges are made of metal; others are made of transparent plastic; with the latter, the user can see how much ink remains (see illustration at bottom of page 13).

Lightness in weight in a pen or pencil is often important for persons who do a great deal of writing. Pens made largely of metal usually have the disadvantage of being heavier than those made partially or mainly of plastic. The metal-cased *Waterman's Sapphire* was one of the heavier pens (it weighed about 2/3 ounce). The metal-cased *Sheaffer's Skripriter* was average in weight (about ½ ounce). The *Autopoint 3X* and *Scripto T400*, with barrels made of plastic, and the wood-cased *Koh-I-Ball*, weighing about ¼ ounce, were among the pens of less-than-average weight. The all-metal pens, though attractive in appearance and perhaps more durable in construction, are not in our opinion as well-adapted to constant or frequent use as pens made of plastic, for the relatively slippery surface afforded by metal usually does not provide the friction necessary to permit the pen to be held comfortably and firmly by the fingers.

Tests of ball pens

The amount of writing provided by a ball pen was determined by the continuous operation of the pen in a mechanical device built by Consumers' Research. With this machine, the pen writes lines back and forth over a strip of paper, which moves at a constant rate, until the ink in the cartridge is exhausted.

In 1949, the number of feet of writing obtained from a single filler ranged from 900 to 17,000 feet. The cartridges here reported wrote from 4000 to as much as 40,000 feet. Of the brands of ball pens which are claimed to have large-capacity cartridges, the *Sheaffer's Skripriter* afforded the most writing from a single cartridge—40,000 feet. The following pens, also advertised as having cartridges with large ink capacity, afforded from 9000 to 24,000 feet of writing: *Autopoint*, *Esterbrook*, *Ferber "49'er,"* *Flo-Ball*, *Parker T-Ball Jotter*, *Scripto Satellite*, *Venus "Longer Performance,"* *Wearever Marlboro.*

One of the objections to some ball pens has been their inability to write satisfactorily on certain kinds of paper and postcards, or over greasy or slippery spots on the paper. The *Parker T-Ball Jotter* has been advertised as having a ball point with a surface that "eliminates practically all skipping." While none of the pens tested was 100 percent successful in writing over oily areas, Consumers' Research found the *Autopoint*, *Esterbrook*, and *Parker* better than average; the *Waterman's La Plume* was least satisfactory, in this respect.

Unless otherwise noted, the pens in the following listings had push-button point-retracting devices; barrels made of plastic and polished metal, with metal cartridges; and blue or dark-blue ink which was fairly good in resistance to fading by exposure to strong light; and were average in weight (about ½ ounce).

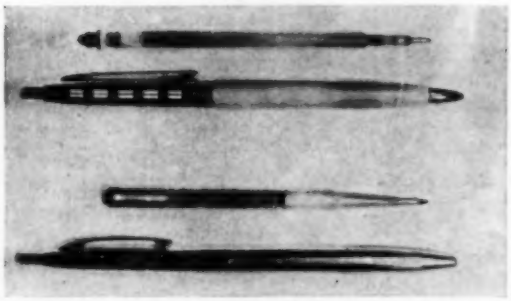
The first figure in parentheses following the price in the listings is the average number of feet of writing provided by the ink cartridge tested; the second figure, in italics, is the number of feet of writing obtained for 1 cent, based on the cost of the ink cartridge (or on the cost of the pen in cases where the ink cartridge is not replaceable); the price rating (1, 2, or 3) reflects the relative economy of using each ball pen (based upon the number of feet of writing for 1 cent).

A. Recommended

Ferber "49'er" (Ferber Corp., Englewood, N.J.) 49c; refill, 25c. (12,000; *475*) Slender plastic barrel. Lighter than average in weight. **1**

Sheaffer's Skripriter (W. A. Sheaffer Pen Co., Fort Madison, Iowa) $2.95; refill, 89c. Fine point (40,000; *450*). Refills also available with medium points. Slender, well-finished metal barrel (aluminum); transparent cartridge. The *Skripriter* cartridges gave the greatest amount of writing of the cartridges tested. **1**

Esterbrook (The Esterbrook Pen Co., Delaware Ave. and Cooper St., Camden 1, N.J.) $2.50; refill, 69c. Fine point (19,000; *275*); medium point (24,000; *350*). Relatively high finger pressure required to operate the cap-



There are striking differences in the number of feet of writing afforded by different ball-pen cartridges claimed to have large ink capacity. The Sheaffer's Skripriter (bottom), with its 89-cent "giant" fine-point cartridge, gave a total of 40,000 feet of writing; the Wearever Marlboro 49-cent fine-point cartridge (top), also called "giant," wrote 12,000 feet. (With some of the usual kind of cartridges, as little as 4000 to 5000 feet of writing was available.)

actuated propelling-retracting device. Plastic barrel with metal trim. Heavier than average in weight. **2**

Flo-Ball "Automatic," No. 210 (Flo-Ball Pen Corp., 9 E. Tenth St., Holland, Mich.) $2; refill, 50c. Fine point (16,000; *325*); medium point (17,000; *350*). **2**

Parker Special T-Ball Jotter (The Parker Pen Co., Janesville, Wis.) $1.95; refill, 79c. Fine point (24,000; *300*); medium point (24,000; *300*). Refills also available with extra-fine and broad points. Well finished; judged the most attractive of the pens tested. Heavier than average in weight. **2**

Scripto Satellite (Scripto, Inc., P.O. Box 4847, Atlanta 2, Ga.) $1.95; refill, 69c. Medium point (20,000; *300*). Refills also available with fine points. Slender barrel; transparent cartridge. Relatively high finger pressure required to operate the propelling-retracting device. **2**

Venus "Longer Performance" (Venus Pen & Pencil Corp., Hoboken, N.J.) $1; refill, 49c. Fine point (15,000; *300*); medium point (11,000; *225*). Transparent cartridge. **2**

Waterman's La Plume (Waterman Pen Co., Inc., 1 DeForest St., Seymour, Conn.) 98c; refill, 50c. Fine point (10,000; *200*); medium point (11,000; *225*). Very slender barrel. Relatively high finger pressure required. **2**

Wearever Marlboro (David Kahn, Inc., North Bergen, N.J.) $1; refill, 49c. Fine point (12,000; *250*); medium point (9000; *175*). Transparent cartridge. **2**

Waterman's Sapphire (Waterman Pen Co.) "*Astralite*" model (chrome finish), $2.50; "*Golden*" model, $4.95; refill, 89c. Fine point (10,000; *100*); medium point (13,000; *150*). Very slender metal barrel. Heavier than average. Relatively high finger pressure required. **3**

B. Intermediate

Autopoint 3X (Autopoint Co., 3200 W. Peterson Ave., Chicago 45) 49c. (19,000; *400*) Slender transparent plastic barrel, which contains the ink supply, is non-refillable. Point does not retract, but has a non-removable sleeve, which is turned to cover the writing point when the pen is not in use. Lighter than average. **1**

Koh-I-Ball (Koh-I-Noor Pencil Co., Inc., Bloomsbury, N.J.) *No. 3020*, fine point: 39c (with point protector and clip, 45c); refill, 25c (11,000; *450*). *No. 3021*, medium point: 29c; refill 15c (11,000; *725*). Looks like an ordinary wooden pencil and is offered for sale as a "ball-point pencil," but has metal cartridge with the usual colored ball-pen ink. Non-retractable point. Lighter than average. Handy for desk use, but cartridge became loose in its holder after considerable use. The *Koh-I-Ball* medium-point cartridge gave the greatest amount of writing for 1c. of all cartridges tested. **1**

Scripto T400 (Scripto, Inc.) 29c; refills, 2 for 29c. (4000; *275*) Slender plastic barrel; transparent cartridge. Lighter than average. The *Scripto* cartridge for the *T400* pen gave the least amount of writing of the cartridges tested; in amount of writing for 1c, it was about average. **2**

Wearever Miracle (David Kahn, Inc.) 50c; refill, 25c. (6000; *250*) **2**

Eversharp "Small Ball" (The Eversharp Pen Co., Arlington Heights, Ill.) $1.95; refill, 50c. Fine point (8000; *150*). Transparent cartridge. **3**

Paper-Mate Tu-Tone (The Paper-Mate Co., 444 Merchandise Mart, Chicago 54) $1.69; "Standard" refill, 49c. Fine point (7000; *150*); medium point (6000; *125*). Plastic barrel with metal trim. *Piggy-Back* refill, 69c. Medium point (5000; *75*). The much-advertised *Piggy-Back* (consisting of two sections, each with its own point and its own ink supply) gave the least amount of writing for 1c. The two sections together gave considerably less writing than the average of the single cartridges of the other brands tested. ¶The new *Paper-Mate Capri "Mark III,"* at $2.49, was not available in time to be included in our tests. **3**

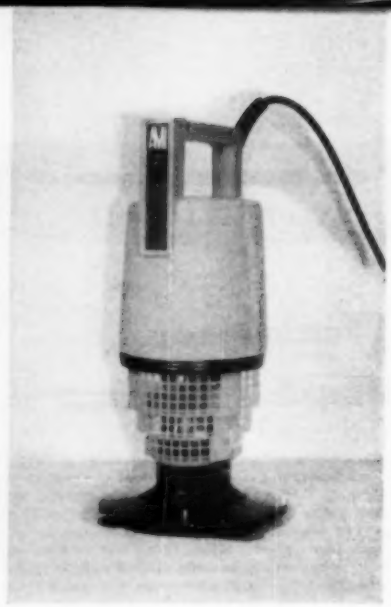
Scripto Super Dollar (Scripto, Inc.) $1; refill, 49c. Medium point (5000; *100*). Refills also available with fine points. Slender plastic barrel with metal trim; transparent cartridge. Lighter than average. **3**

GOOD BUYS IN RETRACTABLE BALL PENS*

$1.00 and under	Pen	Refill
Ferber "49'er"	$.49	$.25
Venus	1.00	.49
Waterman's La Plume	.98	.50
Wearever Marlboro	1.00	.49
$1.95 up		
Esterbrook	2.50	.69
Flo-Ball	2.00	.50
Parker T-Ball Jotter	1.95	.79
Scripto Satellite	1.95	.69
Sheaffer's Skripriter	2.95	.89
Waterman's Sapphire	2.50 & 4.95	.89

* For details on these pens, see listings on pages 14 and 15.

The "AMI" portable clothes washer



WITHIN RECENT MONTHS, there has been an eagerness on the part of consumers to buy devices of all sorts—radio and television receivers, tools, air conditioners that feature portability. To profit from the sales to be made in this market, AMI, Inc. (Grand Rapids, Mich.) has brought out a portable clothes washer aimed at people who live in apartments, small homes, summer cottages, trailers, and people on vacation trips, as well as those who already own a washing machine, but might have a need for a second smaller machine for laundering lingerie and small garments, handkerchiefs, and the like.

While no doubt many people will buy the *AMI* washer on the strength of the advertising claims, it would be safe to suppose, we think, that a very substantial proportion of these washers will be set aside and left unused, after being used only a few times. Few people will want to be bothered with such a device since it affords only moderate agitation and the clothes must then be handled and wrung out by hand. At best, the *AMI* could be conveniently used only for relatively small pieces.

In laboratory tests, with cloths soiled under controlled and standard conditions, and with family wash loads, the *AMI* did churn, roll, and aerate the water, but the clothes were moved about too gently to produce good washing results. Compared to the cleansing action obtained with a typical modern automatic clothes washing machine, the *AMI's* performance was distinctly inferior. The appliance removed loose surface dirt from the clothes, but did not wash the more heavily soiled areas even when run for the full 10-minute wash periods recommended by the manufacturer. When large articles, such as bed sheets and tablecloths, were included in a load, the washing efficiency was still further reduced. The inability of the washer to move the larger articles effectively interfered with the movement of the smaller pieces being washed. However, even a 4-pound load, the size recommended by the manufacturer, consisting of small articles, overloaded the washer.

In the advertising, the *AMI* washer is pictured being used in a bucket, sink, laundry tub, or bath tub, but use of either of the first two would be unsatisfactory because of size limitations of the container. The average bucket would be much too small in diameter, and the typical sink too shallow. A laundry tub would serve best, since it could confine the clothes in a small enough space to keep them close to the water-activating effect of the washer. Small articles, such as socks, handkerchiefs, etc., when washed in a bathtub, floated away from the washer and were not pulled back into the water stream produced by the *AMI* device; these articles were thus left virtually unwashed.

Plain water is a detergent in the sense that it will remove a certain amount of dirt and soil from clothes soaked in it, but alone it does not wash at all well. To get acceptable detergency, as well as minimum soil redeposition, a sufficient amount of soap or synthetic detergent must be added to the water. This could not be done with the *AMI*

Such claims as——

Washes 4 lb. loads as clean as any full-sized automatic washer in just 7 minutes——

or—*Has all the cleaning action of a full-sized washer——*

or—*New 4-way patented washing action gets clothes cleaner——*

or—*Rinses clothes 4 ways for complete removal of soap and sediment——*

were not substantiated in tests by Consumers' Research.

since the churning action and introduction of air into the water produced an abundance of suds, even with relatively small quantities of low-sudsing detergent. When the detergent was used in sufficient amounts to be effective, the suds interfered with the movement of the clothes that is necessary for effective washing. The manufacturer recommends beginning with ½ teaspoon of detergent for a 4-pound load and adding more detergent after running ½ minute, until ample suds develop. Under a variety of conditions used in the tests by Consumers' Research, it was found that, with 4 pounds of soiled clothes, only 5 or 6 teaspoons of a low-sudsing detergent could be added to 8 gallons of water without producing excessive suds. A more realistic amount would have been in the neighborhood of four to five times that amount.

The *AMI* washer passed all the electrical tests, but CR believes it wise to point out that any electrical appliance, regardless of how well insulated it is when new, if used submerged or even partly submerged in water presents a potential hazard and may in time, or with abuse, subject the person operating it to the risk of severe shock and possibly in an extreme case to death.

The *AMI* washer can be operated without need for handling it while it is running in water, but most any person using it would at one time or other put her hands into the water to rearrange one or more articles, which is all that would be needed to subject the user to a dangerous shock were the appliance to develop an electrical wiring failure. Such a failure might possibly not be discovered until too late.

No one can be sure that an electrical appliance, and particularly a portable appliance, will not be in danger of developing a wiring defect of some kind after a time and a period of use, and possibly of abuse.

C. Not Recommended

AMI Washer (AMI Inc., Grand Rapids, Mich.) $59.95. Effectiveness in washing, poor, compared to a full-size automatic washer, and with the *AMI* it is necessary, of course, to handle and wring out the clothes by hand.

The special study of the low-priced clothes washing device pictured and described in the accompanying article was carried out for the reason that many consumers are strongly influenced by advertising of such devices, especially when claims are made that make it appear the appliance will be as useful and efficient as one costing several times as much.

Some are aware that an appliance bought at such a large saving over the cost of an older and well-established product is unlikely to have the high degree of effectiveness and efficiency of full-size high-priced equipment for which it is advertised as an effective substitute. On the other hand, when the low-priced article is featured in the advertising of well-known department stores, printed in responsible journals, prospective purchasers have reasonable justification for believing the claims must have some relation to reality.

It is hoped that the accompanying article will be useful in helping our readers judge other products for which the manufacturer or retailer makes alluring and surprising claims of high performance at low cost, for example, automobile accessories and chemical specialties claimed to step up power and miles per gallon, to improve acceleration, or lengthen life of the car or engine.

Left: 2-pound load which AMI Washer handled readily, but did not wash well.

Center: 4-pound load AMI manufacturer recommends.

Right: 8-pound load well handled by standard washing machine.

The truth about nylon and rayon tires

(The beginning of this article is on page 2)

Both kinds of tires were heated by one-hour road runs at 80 miles an hour, followed by five minutes of high-speed driving in tight turns, before impacting a curbing. Tire surface temperatures were found to be close to 270°F, just before the impacts.

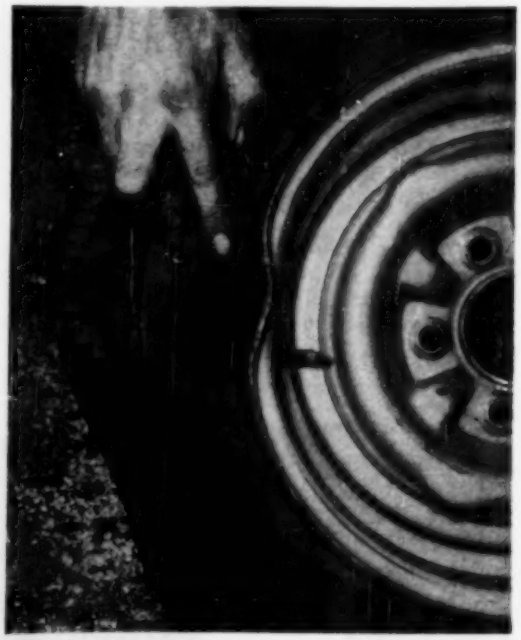
Readers may ask why claims of greatly superior performance are made for nylon cord. The answer would seem to lie in a shrewdly planned advertising program for nylon cord designed to capture from the long-established rayon cord industry the vast and lucrative business of selling tire cord to the manufacturers.

Up to the present campaign to put over the higher-priced nylon cord tires, the subject of cord has remained pretty much in the background. Before rayon, cotton accounted for the bulk of the cord used in tires. Man-made fibers came into prominence in the early 50's, and cotton in tires was being replaced with the cellulose fiber called rayon. In a short span of years, this material completely replaced cotton in tire construction. The merits of rayon over cotton for tire fabrics were well defined and proven by actual use by motorists, but not without the necessity of first overcoming the various practical problems and deficiencies that attend most new developments in manufacturing practice. (Early rayon tires were sometimes more susceptible to side-wall failures than their predecessors.)

As time passed, public experience with these failures and constant research by manufacturers provided means by which the difficulties were largely overcome, and after the early 50's, automobile tires were predominantly built with rayon fiber cords. The transition came without great fanfare and advertising, and was accepted as progress in the chemical age.

Readers will recall that during the Second World War a strong and versatile man-made fiber called nylon served many useful purposes in military applications, following its use in ladies' hosiery to replace silk. Nylon quickly became a household word. Some early applications of this fiber resulted in disappointment due, for example, to nylon's inability to stand up under long-time exposure to the sun's rays in curtains and in certain other uses. However, in many applications its utility was well established and its popularity grew so that the term nylon quickly became a badge of merit, particularly in women's garments. The manufacturers of nylon fiber naturally sought new fields for their product, particularly outlets which would consume very large quantities of the fiber. The automotive tire field seemed made to order for this purpose, for it could account for something over one hundred million pounds a year. To achieve this end, it was of course necessary to find ways for routing the strongly entrenched use of rayon and to build up a public acceptance of nylon as inherently somehow superior. The encroachment of nylon on rayon cords was small at first, amounting to only about 5 percent of the market, but in time millions of dollars of advertising and promotion by the nylon industry began to be effective. Nylon's claims for superiority were plausible enough, based on the theme of safety and strength. The battle is still raging, and the outcome will depend to a considerable extent upon the number of millions of dollars each side can afford to spend in promoting their particular kind of cord fiber.

In automobile tires, strength and resistance to



Close-up showing damage to rim in curb-impact test; the tubeless tires on the rear wheels became deflated because of loss of seal at the bead line of the tire. The seal was broken because of the damage to the tire rim produced by the deep deflection of the tire riding over the curb. This is an important weakness of tubeless tires, which depend upon maintenance of contact by the tire with the rim for sealing the air. When the same tires with tubes were subjected to the same impact, the loss of air did not occur, even when the rim was dented.

the internal forces due to air pressure and the external forces due to the driving torque at the rear wheels is dependent upon certain interrelationships of the components that make up the tire. The cage of fabric to which the other components of the tire are bonded or attached becomes the controlling factor in the strength of the tire. Because of differences in materials, design, and manufacturing practices, each brand of tire is different from all others in strength characteristics, and no standards have been established that assure motorists they will obtain equal value when they select a given brand of tires or that a tire at a higher price will be better than another of the same brand at a lower price.

* * *

In tests conducted by the Motor Vehicle Research Laboratories, South Lee, New Hampshire, two each of five leading brands (*Firestone*, *Goodrich*, *Goodyear*, *U.S. Royal*, and *Wards*) and grades of both nylon and rayon first-line tires were subjected to rupture resistance or static strength tests developed by Motor Vehicle Research Inc. Each tire was mounted on a standard rim and inflated under identical conditions until the tire failed.

It is believed that, to pass this test, a tire should be capable of withstanding a bursting pressure equal to 10 times the pressure at which it normally operates. For example, a 6.70 x 15 tire is inflated to 24 pounds per square inch. Ten times that pressure would mean that a tire must resist a minimum of 240 pounds per square inch before failure, to be acceptable. This is like the test procedure which is commonly applied to steel pressure cylinders and many other containers that must be safe under severe and varying conditions of load, temperature, impact, etc. (Ten times normal pressure is also standard for testing bead construction in tires in the industry.) It is interesting to note that the great majority of the tires tested did successfully withstand at least 10 times the static working pressure before failure occurred.

In the 60-mile-per-hour curb-impact test, tires were momentarily deformed to a point where the rims themselves were allowed to come into contact with the obstacle. As a result, the rims became dented. During these tests not one tire equipped with a tube became deflated. It may be added that breaking of the rim seal with a tubeless tire can occur on the road from other causes than riding over a high obstacle—for example, a strong sidewise thrust in the spinning of a car during a skid, or in some other kind of accident. From an impact resistance standpoint, rayon and nylon tires performed equally well in this test.

It was found that the *B. F. Goodrich Silvertown DeLuxe* rayon tire was strongest of all brands of first-line tires tested. This tire was stronger also than a nylon cord tire of the same brand. The tests clearly show that the claims of superior strength for nylon are unfounded and on this basis their higher price is not justified.

A study was made of the stretching of tires under internal pressure and the tendency of nylon to show set under pressure (as might be expected from its behavior in producing "nylon tire thump") was confirmed. Expansion gauges at four positions on the tires as they were inflated showed that nylon stretched far more than rayon tires. This was evidenced also by the slower rate of rise of pressure in the nylon tires when air was fed into them and into rayon tires at the same rate of flow.

Tire makers have been plagued by the stretch problem for some time, and retreading plants have also had difficulties in working with nylon tires because of their stretch characteristics. One might naturally ask, in view of these disadvantages, why do manufacturers buy and use nylon cord and sell tires made with it at a premium price? The answer is that nylon tires weigh less and sell for more, and they sell for more because cleverly oriented advertising has been able to persuade the customer that things made with nylon are better than things made with rayon.

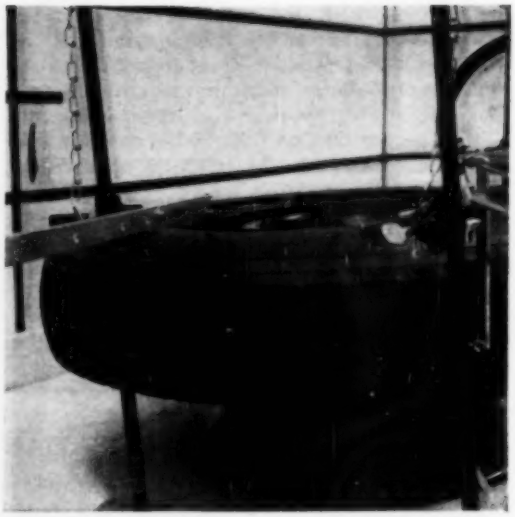
While nylon is battling rayon, there now appears on the horizon a threat to both. There are possibilities of the use of metal wires either of steel or non-ferrous type, to replace man-made fibers in the building of tires. Attempts to use metal cord construction date back to 1912, and the method has made an appearance many times in intervening years without becoming popular or successful.

The public paid for the mistakes of manufacturers in using rayon until that fiber finally became a successful component of tires. They pay likewise at the present time for the de-

ficiencies of nylon as a tire-building material. Those who are offered tires with metal wire construction are wise to remember that during the period of development there are almost sure to be failures and disappointments. From the consumer's standpoint, it is important to know that rayon is the best tire-building material at the present time; that metal cords when they come will involve considerable uncertainties until they have been in use for at least several years; that the consumer will, therefore, be wise to take with a generous grain of salt what manufacturers say about these new offerings.

It is unfortunate that the public is not protected by standards for tires which would preclude the use of meaningless and confusing nomenclatures, such as "100 Level," "Premium," "De Luxe," "Super," and "De Luxe Super." In a recent complaint, the Federal Trade Commission has charged one of the large tire companies with misrepresentation in that its tires sold under the names of "Super" and "De Luxe Super" were actually of a lower grade than their plain ordinary "De Luxe" tires. This confusing nomenclature permeates the whole industry, and no one can be sure where a tire falls in sequence from top to bottom of the scale nor, for that matter, can one tell by its price whether it is supposed to be better or not so good as another tire of the same make.

The claimed superiority of what are known as "gimmick" tires that sell for fantastic prices is a prime example of advertising that tends to mislead consumers. Selling "special" tires with built-in features at extra prices can be compared with selling a standard appliance with non-functional chrome trim at three times the price of the regular item. Sometimes the added features, instead of being advantageous, may give the consumer even less satisfaction, because of complications that arise due to unexpected difficulties growing out of features that have not been tested in long service.



Measuring stretch characteristics of tires during inflation to high pressures. Tread and side-wall areas of nylon tires expanded far more than rayon tires. Four gauges to register expansion were photographed with motion picture cameras. Stretch characteristics of the tires were determined from the film records.

* *

It is CR's considered opinion that, at the present time, motorists would be better off to buy the lower-priced rayon tires and wait until the makers of nylon and wire mesh tires have corrected the mistakes and troubles pretty sure to be present in the developmental stages of all new designs.

Vegetable shredders and meat grinders

(*The beginning of this article is on page 39*)

maker hopper with 3 cones for grating, shredding, and slicing, and meat-grinding hopper with 3 cutting disks. Accessory cones for waffling and extra-thin slicing also available at extra charge. White-enameled metal base with four legs having suction cups. Could be taken apart for storage. Judged easy to assemble, and was relatively easy to clean if cones were rinsed off immediately after use. Good performance. Would be rated *A* if food pusher were provided as is needed for safety.

Royal Supreme (Manufacturer's name not shown; imported from Solingen, Germany) $5.95. Sold with 4 cones for shredding, slicing, grating, and "superfine" grating. White-enameled metal base, with three legs having suction cups; could be taken apart for storage. Wooden food "pusher" provided. Did an especially good job of grating nuts. Judged easy to assemble, but relatively difficult to clean.

C. Not Recommended

Magic Hostess, No. 556 (Magic Hostess Corp., Kansas City 29; distributed by Rival Mfg. Co.; Montgomery Ward's Cat. No. 86—1115) $10.89, plus postage. "A combination meat grinder and salad chef." (Shown at the right in the illustration.) Listed in some catalogs as "*Kitchener*" or "*Kitcheneer*," but should not be confused with the *Rival Kitcheneer* listed under *B. Intermediate*. Had salad maker hopper with three disks for shredding, grating, and slicing, and meat-grinding hopper with 3 cutting disks. White-enameled metal base with four legs having suction cups. Did a satisfactory job on vegetables but small pieces of nuts fell through without being grated. No pusher provided. Mounting of hopper to base was not secure, permitting the hopper to wiggle as the crank is turned. This made the device unsatisfactory to use and somewhat hazardous.

High-powered audio amplifiers

THE RACE toward greater and greater horsepower in the engines produced by the automobile manufacturers seems to have its reflection in the audio amplifier industry. At a time when 10 or 20 watts was considered adequate power, a few manufacturers brought out amplifiers for which they claimed output capacity of 30 to 40 watts. Now a few manufacturers are offering amplifiers capable of even 60, 70, or more watts, for use in the home.

It may be doubted whether amplifiers of such high output power are really needed for home use except in the unusual circumstances that loud-speakers are to be operated out of doors or in several locations in a large house. There is some need for power greater than the customary 10 or 20 watts output hitherto offered by commercial home-use amplifiers, for an occasional musical selection which involves what is known as a wide dynamic range and has loud peaks of sound due to drums or massed instruments of the symphony orchestra or band. Such music places real demands on both amplifier and loud-speaker.

If you are the possessor of a fine loud-speaker system that will reproduce a very wide range of frequencies with very low distortion (and can handle the extra power), then you might be justified in purchasing an amplifier capable of driving the speaker during loud peaks of sound without adding to the distortion of the system by virtue of the amplifier's being overloaded. For most speakers of average efficiency in a room of good size, a 20- or 30-watt amplifier should suffice; for small rooms, 10 watts should be ample. However, if you prefer your music on the very loud side and you happen to live in a home where you can listen to that kind of music without disturbing your neighbors or persons in the next apartment, and if your loud-speaker is of a type which is relatively inefficient acoustically (such as the *Acoustic Research AR1*), then it is possible you might have use for an amplifier capable of 50 watts maximum output. Such cases, however, will be exceptional.

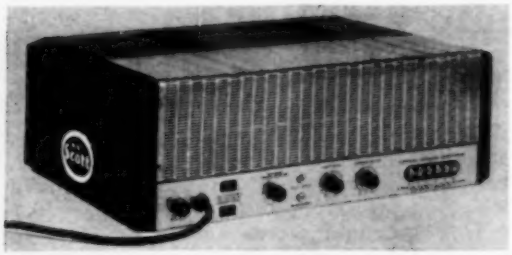
Such large-scale sound output will be expensive, for providing 50 or 60 watts of electrical input to the speaker calls for very large and heavy output transformers and power transformers. The last-stage vacuum tubes required for large electrical output are also expensive by comparison with the kinds used in 10- or 20-watt amplifiers. For normal listening levels, the power needed will be around 2 to 5 or 10 watts when the speaker is of a relatively efficient type. For such purposes, there is no real need for an amplifier capable of presenting a "clean signal" at a 50- or 60-watt level. On the other hand, amplifier manufacturers argue that the bigger amplifier provides a reserve of power for the occasional sound output peaks in very loud passages in some compositions.

It is doubtful if anyone will use the full power output of the amplifiers dealt with in this report, in ordinary home usage, or anything near such large output. Even if the loud-speaker will take it, and it often will not, the chances are that listening ears will resent the high volume and most certainly the neighbors will have just cause for complaint if subjected, for example, to full volume reproduction of a freight train creaking around a sharp curve or the thunder-loud noises of some of the other popular demonstration records. On the other hand, the full power of a large amplifier may be utilized to advantage in situations where a fine public address system is used, as in a church, meeting hall, theater, or auditorium.

Of the amplifiers tested, the *Heathkit*, *McIntosh*, *Scott*, and *Fisher* had 500-ohm or 70.7-volt output taps for use with a multi-speaker installation or a public address system.

As already noted, high power output is not attained cheaply. Unless one constructs one of the kit amplifiers, the cost of a high-power amplifier will be several times as high as one of the 10-watt amplifiers that used to be considered sufficient for home use. While cost per watt (based on *available* power output) will be about the same for all sizes of amplifiers, the cost per watt based on *actual power needed and used "by the speaker"* will be very much greater with a 70-watt amplifier than with a 20- or 30-watt amplifier (the 60-watt

Heathkit W-6M



H. H. Scott 280

Dynakit Mark III at $80 will be an exception to this rule).

The availability of components in kit form has generally lowered the cost of high-fidelity systems in the past few years. If you believe you are possessed of reasonable skill with a soldering iron and a screw driver, and a few other familiar tools, you will be able to save a considerable amount of money by making your own amplifier from a kit of parts. That, of course, assumes that you enjoy putting things together and making them work.

The *Heathkit W-6M* and the *Dynakit Mark III* are both fine amplifiers. The *Heathkit* was more complicated than the *Dynakit*, and required about eight hours for a skilled person to assemble. The *Dynakit*, which has a preassembled printed circuit board, took only 2½ hours for the same person to assemble. It was judged, however, that a novice would have no trouble assembling either amplifier, as the instructions are very well presented, and both kits were complete to the last lock washer.

Both companies provide competent service for those who may have difficulties and write for help or advice.

The *McIntosh* and *Scott* amplifiers are superb examples of the amplifier builder's art. Either will do an excellent job when used with any high-quality loud-speaker system available to the public today. The *Heathkit* and the *Dynakit* are nearly as good and are also capable of excellent performance.

One of the most important attributes of a high-power amplifier is that it shall amplify very low and high frequencies with low distortion and sustained high power output. The *Fisher 200* has good general performance, but the use of the *Z-matic* variable damping control had the effect of increasing the distortion at low frequencies.

The *Bogen DO-70*, though it was rated at 70 watts, was not in a class with the other high-power amplifiers. Its power output fell off at very high and very low frequencies, and the amounts of intermodulation distortion and harmonic distortion at low frequencies were considered excessive. Its circuit design was judged poor from the standpoint of safety of the output tubes, which can be destroyed by either a failure of the regulator tube in the amplifier or by excessive input signal levels.

The amplifiers listed are all "basic amplifiers," that is, they do not have built-in preamplifiers or tone controls and they must be used with an external preamplifier control unit. For maximum performance, be sure that the output voltage of the preamplifier is not less than the sensitivity figure of the amplifier. Leakage current, an indication of potential electrical shock hazard, was found in CR's tests to be satisfactorily low on all amplifiers except the *Bogen DO-70*.

A. Recommended

Dynakit Mark III (Dyna Co , 617 N. 41 St., Philadelphia 4) $79.95 (in kit form).

Description: Rated power output, 60 watts. 9 in. wide, 9 in. deep, 6¾ in. high. Weight, 28 lb. Three tubes plus one rectifier tube. Uses push-pull KT-88's in the output stage. Output impedances, 4, 8, 16 ohms. Sensitivity (the level of input signal needed to drive the amplifier to rated output), 1.6 volts input for 60 watts output. A power socket is provided that is adapted to *Dynakit* or *Heathkit* preamplifier.

Performance: Output power with 1% harmonic distortion, 56 watts at 1000 c.p.s., 32 watts at 20 c.p.s. Intermodulation (IM) distortion, 2% (low) at 56 watts. Frequency response at rated output, excellent. Hum and noise level, very low.

Summary: This amplifier was found to be absolutely stable under any conditions of capacitive loading (electrostatic speaker) and overloading. Tubes and filter capacitors are operated conservatively This would indicate relatively long life. **1**

Heathkit W-6M (Heath Co., 305 Territorial Rd., Benton Harbor, Mich.) $109.95 (in kit form).

Description: Rated power output, 70 watts. 14¼ in. wide, 11⅞ in. deep, 9-1/16 in. high. Weight, 45 lb. Five tubes plus four silicon rectifiers. Uses push-pull 6550's in the output stage. Output impedances, 4, 8, 16 ohms

Fisher 200

plus 70.7 volts (see paragraph 6 of this article). Has built-in meter to aid user when balancing the output stages (a desirable feature). Sensitivity, 1 volt input for 70 watts output. Has power socket for *Heathkit* preamplifier.

Performance: Output power with 1% harmonic distortion, 76 watts at 1000 c.p.s., 50 watts at 20 c.p.s. IM distortion, 2% at 76 watts (low). Frequency response at rated output, excellent. Hum and noise level, very low.

Summary: While the output tubes are rated conservatively, the filter capacitors operate near their full ratings, and some ratings are exceeded materially during warm up. It was found that one must be careful not to short speaker terminals even momentarily when delivering high power, for this will destroy the silicon rectifiers as well as blow the fuses. The *W-6M* met or exceeded practically all of its advertising claims. **2**

McIntosh MC-60 (McIntosh Co., 320 Water St., Binghamton, N.Y.) $198.50.

Description: Rated power output, 60 watts. 14 in. wide, 10 in. deep, 8 in. high. Weight, 43 lb. Six tubes plus two rectifier tubes. Uses push-pull 6550's in the output stage. Output impedances, 4, 8, 16, 500 ohms. Sensitivity, 0.5 volt input for 55 watts output. A power socket is provided that is adapted to *McIntosh C8* and other preamplifiers.

Performance: Output power with 1% harmonic distortion, 56 watts at 1000 c.p.s., 55 watts at 20 c.p.s. IM distortion, 0.5% (very low) at 56 watts. Frequency response at rated output, excellent. Hum and noise level, very low.

Summary: The *McIntosh* is an outstanding power amplifier. It is stable and conservatively operated and is unusually flexible in operation; it offers both plug and terminal-strip type of input and output connectors. **3**

H. H. Scott 280 (Herman Hosmer Scott, Inc., 111 Powder Mill Rd., Maynard, Mass.) $229.95.

Description: Rated power output, 80 watts. 18 in. wide, 13 in. deep, 6½ in. high. Weight, 45 lb. Nine tubes plus two rectifier tubes. Uses four 6CA7's in push-pull-parallel in the output stage. Output impedances, 4, 8, 16, 24 ohms plus 70.7 volts. Sensitivity, either 0.5 volt or 1.5 volts input for 80 watts output.

Performance: Output power with 1% harmonic distortion, 76 watts at 1000 c.p.s, 40 watts at 20 c.p.s. IM distortion, 2% at 72 watts (low). Frequency response at rated output, excellent. Hum and noise level, very low.

Summary: This amplifier has a "power monitor" control which can be set to limit output to any value from 8 to 80 watts for use with speaker systems that are rated at lower power levels than the maximum amplifier output. The monitor has the advantage that it does let instantaneous peaks through, regardless of its setting. **3**

B. Intermediate

Fisher 200 (Fisher Radio Corp., 21-21 44 Drive, Long Island City 1, N.Y.) $179.50.

Description: Rated power output, 60 watts. 14½ in. wide, 12½ in. deep, 8¾ in. high. Weight, 50 lb. Seven tubes plus two rectifier tubes and one selenium rectifier. Uses push-pull 6CA7/EL34's in the output stage. Output impedances, 4, 8, 16 ohms plus 70.7 volts.

Performance: Output power with 1% harmonic distortion, 56 watts at 1000 c.p.s., 22 watts at 20 c.p.s. IM distortion, 2% at 10 watts with *Z-matic* (the name given by Fisher to its variable damping control) at low damping factor (excessive), 0.8% (very low) at 60 watts with *Z-matic* at maximum damping factor. Frequency response at rated output, very good. Hum and noise level, very low.

Summary: The variable damping circuit (*Z-matic*) in this amplifier caused an appreciable increase in IM distortion when the damping factor was reduced; for best results the *Z-matic* control should be set for maximum damping factor. Power handling of the amplifier at extremely low frequencies is not equal to its performance in the rest of the audio spectrum. **3**

C. Not Recommended

Bogen DO-70 (David Bogen Co., 29 Ninth Ave., New York 14) $129.50.

Description: Rated power output, 70 watts. 15 in. wide, 8½ in. deep, 4½ in. high. Weight, 22 lb. Five tubes plus rectifier tube. Uses push-pull 6CA7/EL34's in the output stage. Output impedances, 4, 8, 16 ohms.

Performance: Output power with 1% harmonic distortion, 85 watts at 1000 c.p.s., 13 watts at 20 c.p.s. (13 watts is exceptionally low and unsatisfactory.) IM distortion with damping factor off, 2% at 75 watts. However, IM distortion remains above 1.5% at power levels as low as 3 watts. This is considered excessive for an amplifier of this class. Excessive shock hazard present; leakage current, 2.1 ma.

Summary: This amplifier had a circuit design such that failure of the regulator tube would cause destruction of the output tubes. In operation, the laminations of the output transformers gave off a "singing" sound. **2**

States can do much more for auto safety

California has made illegal the displaying in a car of windshield ornaments such as baby shoes, fluffy balls, pictures, scarves, and other impediments to clear vision through the windshield. (An exception is made for equipment providing for safe operation of the car, such as rear-view mirrors.)

It is unfortunate that California did not at the same time take the lead in another important and obvious measure for safety by prohibiting the use of sharp-pointed spears and other potentially lethal projections on windshields and fenders, and door handles of shapes that can catch and injure pedestrians.

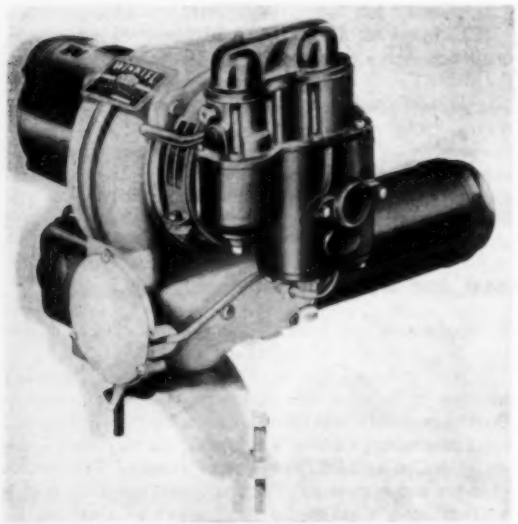
It is to be hoped that as other states copy California's measure to improve driving safety, they will include in their enactments provisions eliminating man-killing and child-puncturing devices and points, which have caused many deaths and injuries in recent years. The insides of today's cars have their bruising and maiming appurtenances, too, that should be removed by state regulations and orders.

Domestic oil burners, low-pressure and rotary

Low-pressure oil burners

Manufacturers have had great difficulties in building high-pressure gun-type atomizing oil burners which could handle fuel oil at a low enough rate of burning to be suitable and safe for present-day well-insulated small homes. Several manufacturers carried on extensive experiments to develop trouble-free low-pressure burners which could be run at a low rate of burning and so reduce the waste of fuel resulting from the necessity of using, with earlier types of burners, flow rates per minute to the burner that were too large for the size of the house to be heated. This problem cannot be solved simply by running a high-capacity burner for shorter periods, for with that method of operation the variation of temperatures in the home between firing periods and non-firing periods becomes intolerably large. A low gallon-per-hour rate of fuel consumption permits longer on or operating periods; the longer periods are conducive to high efficiency and saving of fuel.

Burner manufacturers have now succeeded in making and marketing oil burners which operate with oil pressure as low as 1/100th of that used in high-pressure burners, and such low-pressure burners have orifices that are proportionately larger in diameter than the high-pressure burners; the larger orifices are favorable to a burner's running with a minimum of clogging or other difficulties. Low-pressure burners are now adaptable to firing rates as low as 4/10 gallon of fuel oil per hour.



Winkler Model L-2

Some of the low-pressure burners do not incorporate real changes from high-pressure burner design other than the use of a different type of pump. Such burners have proved much less satisfactory than those which incorporate radical changes in the entire system of feeding and mixing the oil and the air.

Unfortunately, low-pressure burners are considerably more complicated than the high-pressure types, and therefore command considerably higher prices. The reason consumers have not bought the low-pressure burners is very likely that the trade has not been successful in persuading purchasers that they would obtain advantages proportionate to the higher cost of installation of the low-pressure equipment. In our opinion, the excess of about 15 percent in price over the high-pressure burner is not great, considering that the consumer will normally receive better performance and lower operating and service cost with the low-pressure equipment.

A. Recommended

General Electric (General Electric Co., Tyler, Tex.) Fully integrated low-pressure burner-furnace combination for forced warm air. Models available for basements (upflow), utility rooms (downflow), or attics and ceilings (horizontal). Matched cooling units are available for installation either at time of warm-air furnace installation or later. The *GE* is one of the few completely designed and factory-integrated oil heating units available. ¶Manufacture of *GE* boiler-burner units for steam and hot water has been discontinued but some are still available from distributors.

Williams Oil-O-Matic (Eureka-Williams Corp., Bloomington, Ill.) *Model R-160*, 0.4 to 1.6 g.p.h.; *Model Fifty-Ten*, 0.6 to 3.0 g.p.h. Operating pressure adjustable to amount of oil being fired.

Winkler, Low Pressure Oil Burner (Stewart Warner Corp., Heating & Air Conditioning Div., Lebanon, Ind.) *Model L-2*, 0.5 to 1.50 g.p.h.; *Model L-3*, 1.5 to 2.75 g.p.h. Oil from a "fuel meter" enters a rotary-type pump where it is mixed with the proper proportion of primary air for delivery to a low-pressure nozzle having an orifice approximately 30 times larger than comparable high-pressure models. Separate fan supplies secondary air. While the manufacturer claims ability of the *Winkler* burner to burn low-cost oils, and even crankcase drainage, CR recommends a standard No. 2 fuel oil for dependability and a minimum of need for servicing, unless the burner is to be used in a service station where use of the waste product might be warranted.

B. Intermediate

Heil (Heil-Quaker Corp., 2911 S. 32 St., Milwaukee 1) *Model LB-1*, 0.5 to 1.5 g.p.h. A low-pressure model built along the general lines of a high-pressure burner, but with a *Sunstrand* low-pressure pump, and lower in cost than most low-pressure burners. Screw-driver adjustment of firing rate is simple, and eliminates need for changing nozzles. Tentatively rated *B. Intermediate* pending more detailed information on performance.

Vertical rotary burners

A type of burner which, like the low-pressure atomizing burner, is well adapted for use in small residences requiring a rather limited amount of heat is the vertical rotary. Such a burner is suited for use as a conversion burner with round or square (but not rectangular) hand-fired boilers or furnaces. Vertical rotary burners are also used effectively in integral boiler- or furnace-burner units that have firing chambers the proper shape and size.

The vertical rotary burner has a motor with its shaft in the vertical position. This shaft, which is usually the only moving part, drives a rotor which is a combination fan and oil distributor to throw oil against the side walls of the firing chamber in a whirling sweeping pattern somewhat similar to a lawn sprinkler in action. Two outstanding advantages are claimed: (1) the flame blankets the walls of the combustion chamber; and (2) the flame is unforced and unhurried, and thus quiet. These burners are not subject to the disadvantages and limitations imposed by the small opening in the nozzles of high-pressure burners that operate with low rates of oil consumption; the vertical rotary burners can handle oil flows as low as 0.35 g.p.h., it is claimed.

Instances have been reported where it was found necessary to use No. 1 oil at a higher price than the conventional No. 2 fuel oil, possibly as a result of the formation of soot at the beginnings and endings of the operating cycles.

The first part of this article, which appeared in the August 1958 issue, dealt with the high-pressure atomizing type of oil burner, which accounts for by far the greatest part (about 84 percent) of sales of burners used for home heating. The popularity of the gun-type high-pressure burner is due largely to the fact it is considerably lower in price than low-pressure and vertical rotary burners which are better suited to the heating problem of the small house.

Toridheet Model F

Vertical rotary burners have another disadvantage. They are priced at even higher levels than the low-pressure atomizing burner and 35 or 40 percent higher than the high-pressure gun-type atomizing burner which represents the type of burner that greatly predominates in sales. The matter of first costs is believed to have much to do with the wide acceptance of the high-pressure type in spite of the superior performance of the low-pressure gun and vertical rotary burners on the particularly difficult oil burner problems raised by small tightly-built homes.

A. Recommended

Iron Fireman (Timken Silent Automatic Div., Iron Fireman Mfg. Co., Cleveland 11) Same as *Timken Silent Automatic*.

Timken Silent Automatic (Scaife Co., Oakmont, Pittsburgh District, Pa.) *Model OCA-10*, maximum capacity, 1.4 g.p.h.; *Model OCA-18*, maximum capacity, 2.5 g.p.h. Manufacturer claims successful operation with oil rates as low as 0.35 g.p.h. Recommended for No. 1 and No. 2 fuel oil. Electricity consumption, low.

Toridheet (Cleveland Steel Products Corp., 16025 Brookpark Rd., Cleveland 11) *Model F*, 0.5 to 1.5 g.p.h., designed for combustion chambers not over 20 in. in diameter, 20 x 20 in. square, or 20 x 18 in.; *Model F-2*, 0.5 to 2.5 g.p.h., for combustion chambers 27 in. in diameter, 24 x 24 in. square, or 22 x 26 in. rectangular; *Model C*, 2.5 to 6 g.p.h., for maximum of 40-in. diameter. Low consumption of electricity because of intermittent ignition combined with operation on motor of only 1/30 hp. High-pressure gun-type burners of similar capacity would require a 1/8 or 1/6 hp. motor.

An inexpensive device to test your appliances for electrical safety

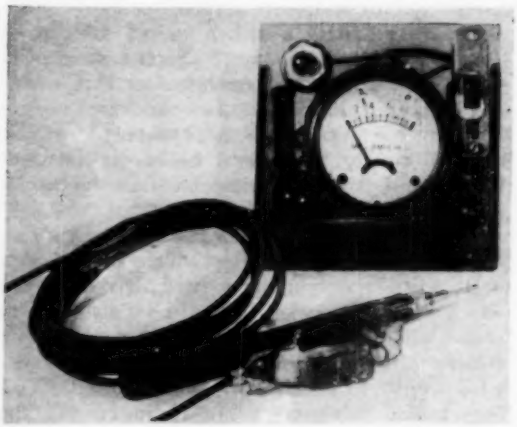
A meter, a transistor, a battery, a diode, available at about $5, plus some other inexpensive components provide means for making a sensitive detector for stray electric currents

THE FIRST TEST that Consumers' Research carries out on an electric appliance upon its receipt in the laboratory is a test for electrical safety. The most important measure of safety is "leakage current," which measures the tendency of the device to give an electric shock to someone touching it. The amount of this current, which can flow from the metal shell or some other exposed part of the appliance through the body of a user or anyone handling or touching the device, may vary from an amount so small as to be detectable only by sensitive laboratory instruments, to values so large that the current may cause death. There are hundreds of such deaths in the course of a year, frequently of young children who are unaware of the danger that may exist in making contact with an electrically-live appliance, a "hot" TV receiver cabinet, contacts inside a wall outlet, the base of a lamp with defective insulation, etc.

Many of our subscribers would like to be able to perform tests for leakage current on appliances in their homes. Any householder who is fairly familiar with the principles of electricity can carry out the test with simple inexpensive equipment. (The type of leakage test equipment Consumers' Research uses in its laboratories is heavy [about 20 pounds] and rather complicated, and represents an investment of several hundred dollars.)

One simple leakage testing device consists primarily of a good grade alternating-current milliammeter, but all good a-c meters are expensive, around $20 or more. On the other hand, direct-current milliammeters are inexpensive, and low-grade d-c meters can be had for as little as $2. These will not serve directly, because ordinarily leakage current is alternating, not direct current. However, it is possible to provide a leakage tester which will measure alternating-current leakage, by using a transistor in combination with a d-c milliammeter, in a suitable circuit.

Such an instrument can be made of parts which cost a total of about $7, and its construction would be an interesting project for high school science students or a homeowner or hobbyist who would like to test his electrical appliances to see



that none is likely to cause injury to anyone in the home. The instrument devised by CR measures the amount of current that will under certain conditions flow through a person's body from the frame or exposed surfaces of an appliance to ground. It is this current that flows through the body of a person touching a defective appliance when another part of the body is in connection with a ground such as a water pipe or faucet, a damp wooden or concrete floor or wall, a radiator, or furnace register, that may cause injury or death.

An alternating current between about 0.2 and 1.0 milliamperes may be felt as a slight tingle; as the current increases the sensation becomes progressively stronger until at 5 milliamperes it will be a strongly felt shock; any current above 5 milliamperes may cause muscles to contract so as to prevent a person from letting go of the appliance, lamp socket, or other electrically live article and thus involve risk of serious injury or death.

To the layman, these figures may not have much meaning, but they can be given a degree of concreteness by noting that 5 milliamperes is only about 1/50 the amount of current through the bulb used with a common 2-cell flashlight.

Whereas 0.2 milliampere may not in itself prove harmful to a human being, the sudden reaction or

surprise at even a slight shock may cause other dangerous results such as the dropping of an electric iron on the foot or on a child, an electric skillet or fryer full of hot fat, or a kettle of hot water. Any sudden start or involuntary movement of the muscles could obviously cause severe burning or even a fall which might prove fatal. Consumers' Research feels that 0.2 milliampere should be the maximum amount of leakage current allowable from any portable electrical tool or appliance. There are a number of agencies that agree with CR's views on the matter. The 0.2 milliampere limit is used by one of the country's largest electrical utility companies (which is one of a very few that has operated an excellent laboratory with a trained staff for testing appliances). Within the last year or two, one or two U. S. government specifications have specified an upper limit of 0.2 milliampere for leakage current.

Over the past 1½ years, CR has successfully demonstrated an experimental leakage tester using a transistor. Our new testing device has now been developed to a stage of design which we feel should be made available for the use of others, particularly, perhaps, high school and trade school teachers in the field of electricity and electrical appliances. Students in such classes, even students in engineering college courses, indeed, are usually not given instruction concerning the cause and nature of electrical leakage conditions which produce shock, and the building and use of CR's new instrument would be a valuable way to give concreteness to this subject and make the student realize the need for care and attention to maintenance in the use of electrical appliances.

When the test probes are connected between the frame of the appliance and a good ground, a 3-watt incandescent lamp is in the circuit. If the leakage current is as much as 3 milliamperes, the bulb will glow faintly and in such a case there is no need to use the transistor circuit of the tester. If the bulb does not glow, the user depresses the spring-loaded switch; this places the transistor amplifier in the circuit and permits a small alternating-current leakage to register as a substantial direct current on the milliammeter. The face of this milliammeter is marked to show the pointer position equivalent to 0.2 milliampere of leakage current.

Included as part of the device is a push-button switch (S_2) to test the small battery, the 3-watt bulb (B_1), and the meter (M); with this circuit one quickly determines that the bulb, lamp, and meter are all functioning. The circuit is so arranged that when the battery, bulb, and meter are being tested, no load is being applied to the transistor or the diode. (It is important always to be in a position to *test a tester* since, if this is not done, the instrument might give an indication that an appliance is in good order and safe to use, when actually it is electrically defective.)

The reason for using a transistor instead of a vacuum tube for the leakage tester is that the transistor requires only a very minute amount of power, whereas the vacuum tube will draw a substantial amount of current from its battery. Also, the transistor is inherently better suited to serve as a small-current amplifier than a vacuum tube is. Moreover since the transistor is a relatively new device in electronics which has aroused much interest among scientists, engineers, and hobbyists, Consumers' Research thought it desirable to present a practical utilization of the device which would be of scientific interest as well as practical use to teachers of engineering, science, and vocational subjects, and homeowners.

All parts in the tester are readily available from mail-order radio and television parts distributors, such as Allied Radio Corp., 100 North Western Ave., Chicago 80. It is recommended that the chassis or base be made of non-conducting material such as *Lucite* or *Bakelite*.

A schematic of the circuit is shown in Figure 1. Figure 2 shows a simple "breadboard" wiring which can be followed easily by persons who are not familiar with schematic diagrams. No substitutions should be made. (There will be no objection to using other *makes* of parts than those indicated, but the electrical values should be those shown.) It is important to observe the correct

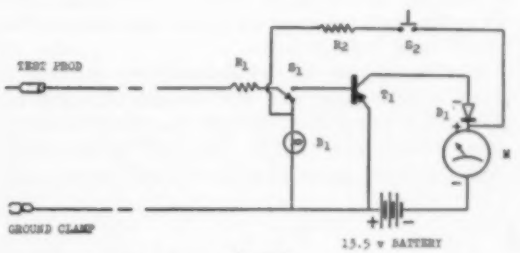


Figure 1

R_1—200-ohm 1/2-watt resistor.
R_2—820-ohm 2-watt resistor.
T_1—Raytheon's CK 722 transistor or equivalent.
M—Milliammeter 0-10 ma. d.c. Emico NF-2C.
D_1—GE's Diode IN-48 or equivalent.
B_1—Bulb, GE's 3S6.
S_1—Slide switch, spring loaded (e.g., Stackpole SS-6).
S_2—Push switch, single pole, single throw, normally open (e.g., Cutler Hammer 8411-K4).
Battery—RCA VS 304, 13.5 v., or equivalent.
Test prod—I.C.A.'s 390 or equivalent.
Battery clip or clamp.

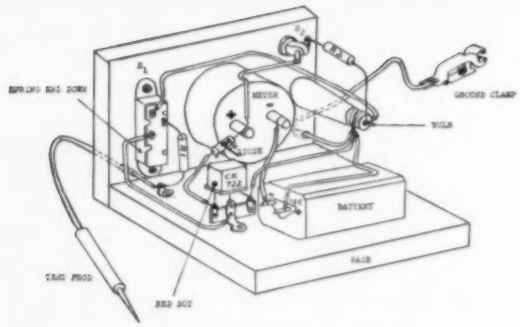


Figure 2

polarity of the transistor in order to avoid injuring it. The collector lead of the *Raytheon CK722* transistor is the one closest to the red dot. With a fresh battery, a scale reading of 3 on the 10-milliampere meter should be the equivalent of 0.2 milliampere leakage current. The battery-bulb-meter-test button (S_2) should be pushed only momentarily. A new battery should give a reading between 4 and 6 on the scale of the 10-milliampere direct-current meter. If the reading is 3 or below, the battery must be replaced.

Construction. All connections should be soldered securely. When soldering the transistor leads and the diode leads, apply heat briefly and do not use too high a temperature. An additional safeguard would be to grasp the leads of the transistor and diode with long-nose pliers held close to the bodies of these components when soldering, to prevent excess heat from reaching the semiconductor devices themselves. (High temperature will ruin both of these items.) In the original tester, connections were soldered directly to the light bulb; however, for a small additional cost, a socket can be used. Connections to the battery were made using small pins made of brass which were filed to fit into the socket of the battery. A regular battery plug such as those used with portable radios can be used if desired.

The meter can be "calibrated" by putting a mark on the glass face with fingernail polish or paint at a point directly over the 3-milliampere point on the meter scale. This will be the reference mark for approximately 0.2-milliampere alternating-current leakage. Any readings to the left of this point will show acceptably low leakage current; any readings to the right of this point will indicate leakage higher than is desirable.

Use of instrument. Depress test switch S_2 momentarily. If meter pointer reads between 4 and 6 milliamperes direct current, the instrument is ready for use. (Excessive or prolonged use of the test button will run the battery down rapidly.)

Secure the ground clamp to a good ground such as a cold-water pipe. Plug in the appliance to be checked and touch the frame of the appliance with the prod. In checking an appliance with an on-off switch, try for leakage current with the appliance switch on, and again with the switch off. Then reverse the appliance plug in the socket, and read leakage again with the power switch on and off. (Sometimes an appliance will show leakage current under one of these conditions and not the others.)

If no faint glow or stronger light is observed in the bulb, the leakage current is below 3 milliamperes and it is safe to use the meter to measure it. Pushing the switch (S_1) and touching the appliance with the probe will give a reading on the test meter, if there is appreciable leakage current. Repeat the on-off and line plug reversing procedure already described. The sensitivity of the instrument is such that leakage currents as low as 0.02 milliampere, about 1/10 the amount which is just perceptible as a faint tingle to most persons, will cause a slight deflection of the pointer.

Since the transistor draws only an extremely small current from the battery when the instrument is not in use, an on-off switch was not included in the circuit. In the original instrument constructed by Consumers' Research over a year ago, the battery is still serviceable.

CR will be interested in hearing from anyone who builds the instrument and has any comments on its operation, or difficulties in its use, or suggestions for improvements.

Emendations to Consumer Bulletin

Keeping cool in '58
Page 10, Col. 1 and 2, Page 11, Col. 1, June '58 Bulletin

In the listing of the *Amana Model 100C2N* air conditioner, the last sentence should read "Efficiency in use of electricity was not measured, but is estimated as average." In the listing of the *Amana Model 100LC2N*, the fourth and fifth lines should be changed to read "with the *100LC2N*, efficiency in use of electricity was above average."

In the listing of the *Gibson Model 1-5812* air conditioner, lines 2 and 3, the electrical rating of the unit should be changed to read 230 volts, 8 amp.

Electric saber saws
Page 29, Col. 2, June '58 Bulletin

Wen, Model 505. The length of the stroke of this saw was 5/8 inch, not 1/2 inch as was stated. Its blower was not effective in removing sawdust.

You're paying for it

High horsepower comes dear not only in a much higher price for the car itself but in the gasoline you must buy to support it; even the lubricating oil for a modern high-power engine costs more

The price of gasoline would be substantially lower if most automobile manufacturers had not joined in the mad race for higher and higher horsepower. The trend of automobile engine design toward horsepower as high as 400, even in some of the so-called "lower-priced" cars, has cost their customers a lot of money, not only because of the larger engines, the larger cars that go with them, the bigger tires and greater tire wear, the gasoline-and-oil-wasting automatic transmissions, but also because the refiners of gasoline have had to produce continual increases in octane number to deal with the greater pre-ignition tendencies of compact high-output engines. The motor car manufacturers have not minded, for you were the one who had to pay for the luxury of excess power, extreme acceleration abilities, and the fuel wastefulness of automatic transmissions, because you had to buy gasoline that cost a lot more per gallon to make and did not give, as some fondly believe, more miles per gallon. Gasoline is one commodity which, except for the continually rising government taxes which it must bear, has increased little in price compared with other things we buy. Except for the taxes, it could have gone down, had motor car manufacturers chosen not to load us all up with engines of ever-increasing power. This trend has cost the customer dearly in other ways, as the accompanying article explains. The consumer has ways to discourage the horsepower increase and to reverse the trend by buying cars that have smaller engines, and lower compression ratios, well exemplified in the foreign makes and in the Rambler American.

WITH present-day sales practices, the automobile manufacturer is expected to come up with something "new" each year. Since even minor body changes entail heavy tool and die expenditures, yearly increases in engine horsepower obtained merely by raising the engine's compression ratio have great appeal to the automobile manufacturer and his advertising agencies. These increases have the advantage that they can be accomplished with only modest increases in manufacturing costs. Basically, the change in compression ratio is made by reducing the space inside the cylinder head, and in the last five years, the horsepower rating of many cars has been almost doubled by this method, while engine power capabilities, as measured by the displacement of the pistons themselves, have changed very little.

Between 1952 and 1957, average engine piston displacement rose from 252 to only 304 cubic inches, while average brake horsepower as claimed by the manufacturer was jumping from 123 to 233. Average compression ratios rose from 7.1 to 8.75 during the same period. Between 1931 and 1957 compression was increased by about two thirds and engine speed went up by 40 percent. The trend of basic engine characteristics may be seen in the following table based in part on data given in Automotive Industries.

Trends in basic engine characteristics

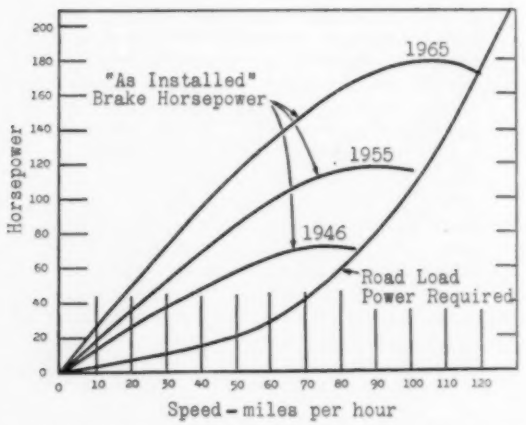
	Average for		
	1931	1952	1957
Piston displacement, cu. in.	273	252	304
Engine speed, rpm. at maximum hp.	3230	3820	4540
Compression ratio	5.2	7.1	8.75
Horsepower	95	123	233

There is a point of little return in this process, however, which occurs when the gain in engine horsepower by means of increased compression is offset by increased frictional losses, for these losses, due to friction in the crankshaft bearings, at the piston rod pins, and between piston rings and cylinder walls, go up markedly as compression pressures rise.

An engineer measures the effectiveness of any machine by comparing its useful output with the total cost of the input. Specifically, the dollar input into an automobile comprises the total of fuel, oil, wear, and maintenance costs over a given distance. The useful output is the "payload" carried over that distance, on an average the equivalent of 1½ passengers plus baggage carried in the trunk. The measurement of car

performance is then properly stated in terms of the fraction of a dollar spent to carry one passenger one mile. Such a measure will show up increased costs incurred by use of premium fuel, bigger tires, increased car weight, excessive horsepower, inefficient transmissions, more expensive repairs, and greater depreciation (measured in dollars of constant value). These are the factors largely omitted by the "miles-per-gallon" yardstick which ignores vital elements of cost in the operation of a large and powerful car. *Miles per dollar* (corrected for the decreased value of the dollar due to price inflation) would be a more sensible basis of judgment of today's automobiles as compared with cars of earlier years.

Of course, in any discussion of the automobile engine, the gasoline to which it is so intimately wedded in operation must also be considered. The close relationship arises from this fact: When the gas-air mixture is sucked into the cylinder head of a conventional engine and compressed, its temperature rises. If it is compressed too much, the temperature of the mixture will rise to the point at which the mixture does not burn properly and evenly and "knocking" results. An improperly burned fuel charge, at best, causes a loss of engine power. At worst, it may injure the engine. Obviously, then, as compression ratios are increased, there is a need for a gasoline which will not knock under the higher compression pressures involved.



The accompanying graph shows in greater detail the horsepower available and expected to be available in the period 1946-1965. Horsepowers shown are actual, not the imaginative figures used by the manufacturers, which are based, as explained in our June 1954 BULLETIN in the article "High vs. moderate horsepower," on the bare engine without allowing for power required for the cooling fan and other necessary accessories of an operating engine. The horsepower figures in the graph allow for several thousand miles of accumulation of carbon and represent typical rather than especially favorable under-hood temperatures. Note that the power required to produce the speeds shown is given. The higher power output has permitted a rise in maximum speed from about 85 miles per hour in 1946 to about 103 miles per hour in 1955; it is expected that there will be a further rise to about 120 miles per hour in 1965, if the present trend should continue. (These curves apply to a "composite" of the lower-priced big-three cars.)

The gasoline used in a motor car is a mixture of thousands of chemical compounds of hydrogen and carbon—so-called hydrocarbons. It was early discovered that certain of these hydrocarbon molecules, such as iso-octane, could withstand relatively high compression before detonation occurred. Another hydrocarbon molecule—normal heptane—was found to detonate after very little compression. The method evolved to compare the anti-knock quality of a particular gasoline merely compares that quality with various mixtures of iso-octane and normal heptane. If it detonates at the same compression ratio that an 85-percent-iso-octane-15-percent-heptane mixture does, for example, it is said to have an octane number of 85.

The gasoline produced in 1920 had an octane number of about 50 and was suited to automobile engine compression ratios of only four to one or less. As time passed, and compression ratios increased, a need for gasolines having improved anti-knock quality was created. While the gasoline obtained by simple distillation of crude oil involves a loss of only 3 percent of the parent crude oil, the additional processing required to improve the anti-knock quality increases the loss to about 13 percent. Thus premium- and super-grade gasolines with their higher octane ratings cost more per gallon to produce than regular gasoline, and the new "super-super" fuels which will have octane numbers upwards of 110 may be expected to cost the consumer still more—about one cent per gallon per added octane number.

An oil industry energy specialist, Eugene Ayres, has estimated that an increase of one octane number (for example, an increase from 85 to 86 octane) costs the U. S. petroleum refining industry $330 million in plant investment as well as $63 million a year in manufacturing expense. Ayres estimated that extreme processing of gasoline (made necessary by the trend of automotive engine design) causes a loss of 60 to 100 million barrels of petroleum a year—a huge amount, equal to the entire production of the great East Texas oil field. Oil refiners, like any businessmen, are not too much concerned over these heavy expenditures so long as they can be passed on to the motorist. But oil continually grows more expensive to find and to recover. *It is pretty clear that the increase in engine horsepower accomplished at almost no cost to the automobile manufacturer in present-day auto engines by increasing the compression ratio, chiefly by thinning down cylinder heads, costs the nation and the motorist dearly.*

Incidentally, the production of greater power within approximately the same space has presented some very difficult cooling problems so that today's high power, compact engine is far more subject than the older engines to difficulties from uneven cooling and undercooling of critical parts, chiefly around the valves, and from overheating, which makes for difficulties and delays on the road, particularly in hot climates.

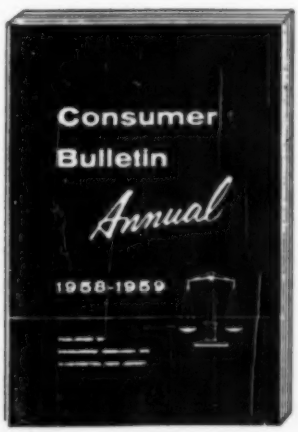
What can the motorist do?

Since many cars will operate satisfactorily on regular gasoline, CR's advice is to try your car on regular gas. If the motor does not knock or "ping," it will be a waste of money to buy premium or the newer double-premium gasolines, such as *Golden Esso*, which have certain added disadvantages because of their higher content of hydrocarbon fractions. Premium fuel will not give better performance in an engine that runs smoothly on regular grade gasoline, and *it will cost you more to use it* (though some of it is sold with the implication that you get the extra expenditure back in extra miles per gallon or in other ways). If economy of operation is a consideration when buying a new car, it will be wise to select a car whose engine has a compression ratio not much greater than 8 to 1. It is wise to keep in mind that, if fuel shortages occur in the event of another war, high octane fuels will be difficult to get—even impossible—in the needed quantities. Remember, too, that both high horsepower, *whether we use it or not*, and automatic transmissions must be paid for in increased fuel consumption and in use of fuel that is far more expensive to produce than the gasolines that work well in engines of lower compression ratio and lower power output.

Automobile designs deficient in comfort and safety

A consulting engineer with over 30 years' experience in many fields has written to express great dissatisfaction with certain major faults of automobile design. A few among those he mentions are: excessively low seats, which cause the knees to be higher than the hips, thus adversely affecting circulation; lack of headroom; lack of adequate height of seat backs. High seat backs offer support to the head which would release muscular tension and protect the neck from being snapped during minor impacts upon the rear of the car. (The so-called whiplash injury, which often causes severe distress and pain lasting for months, after a slight or moderate rear-end collision.)

Just off the press!



• Consult CR's big new Annual Bulletin if you are planning to stock up on household needs. Helping people make a wise selection among the many brands on the market is our chief job. This 224-page "handbook of buying," just off the press, will provide the family purchasing agent with the scientific advice he needs to pick a quality product.

Take this opportunity to order the Annual in combination with a subscription to the monthly Bulletin. Please turn page for rates and a handy order form.

How to destroy bees that have moved into your home

BEES are beneficial insects, but they may often be a menace to the homeowner and his family and friends, and so may have to be destroyed. It is easier to eliminate a colony of bees soon after they they have entered a building than after they have stored large quantities of honey.

Don't try to deal with bees (or hornets, or wasps) in the daytime. Apply any treatment in the evening when the bees have stopped flying and are in the building.

The easiest and possibly the safest way (involving the least danger from toxic chemicals) is to plug the hole or other opening through which the bees enter with a cloth saturated with a concentrated oil solution of chlordane available at hardware stores.

Saturate the cloth and stuff as much of it as possible into the entrance using a screw driver or, if it seems more feasible, inject the chlordane solution into the opening with a syringe (a common ear syringe will do). Then quickly stuff the opening with enough rags to close it.

Wear gloves, a heavy jacket, and a veil over a hat if you can, and take care not to excite the bees or to jar them. If using a ladder, climb slowly to avoid jarring the wall, and remember that a fall from the ladder can be a lot worse than having bees about. Avoid breathing the fumes of the chemical and keep it off the skin. Some persons are highly susceptible to chlordane; there have been occasional deaths, at least one of which was from contact of chlordane with the skin. One must therefore use caution in handling the chemical and take pains to wash thoroughly with soap and water after the job is done.

Processed meats and fish

Processed meats and sausage products which show on their labels the presence of sodium nitrate and sodium nitrite may need to be purchased with caution, especially where there are children in the home. These two types of chemicals, in wide use to give an attractive color to hams, sausage, and some other types of meats which otherwise would not have a pleasing appearance, are not harmless. There have been serious cases of illness due to use of excessive quantities of the additives in the manufacture of meat products, such as wieners and bologna; there have even been a few deaths from this cause.

* * *

Many housewives have noted that frozen fish at times may seem almost devoid of flavor. The freezing, and long storage, perhaps at temperatures not low enough for most effective preservation, have a tendency to reduce the flavor to such a level that many have found some kinds of frozen fish relatively undesirable as food.

Consumer Bulletin

WASHINGTON, NEW JERSEY

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☐ New ☐ Renewal

Ratings of Current Motion Pictures

THIS SECTION aims to give critical consumers a digest of opinion from a wide range of motion picture reviews, including the motion picture trade press, leading newspapers and magazines—some 19 different periodicals in all. The motion picture ratings which follow thus do not represent the judgment of a single person, but are based on an analysis of critics' reviews.

The sources of the reviews are:

Boxoffice, Cue, Daily News (N. Y.), *The Exhibitor, Films in Review, Harrison's Reports, Joint Estimates of Current Motion Pictures, Motion Picture Herald, National Legion of Decency, Newsweek, New York Herald Tribune, New York Times, The New Yorker, Parents' Magazine, Release of the D. A. R. Preview Committee, Reviews and Ratings* by the Protestant Motion Picture Council, *The Tablet, Time, Variety* (weekly).

The figures preceding the title of the picture indicate the number of critics whose judgments of its entertainment values warrant a rating of A (recommended), B (intermediate), or C (not recommended).

Audience suitability is indicated by "A" for adults, "Y" for young people (14-18), and "C" for children, at the end of each line.

Descriptive abbreviations are as follows:
adv—adventure
biog—biography
c—in color (Ansco, Eastman, Technicolor, Trucolor, Warner Color, etc.)
car—cartoon
com—comedy
cri—crime and capture of criminals
doc—documentary
dr—drama
fan—fantasy
hist—founded on historical incident
mel—melodrama
mus—musical
mys—mystery
nov—dramatization of a novel
rom—romance
sci—science fiction
soc—social-problem drama
trav—travelogue
war—dealing with the lives of people in wartime
wes—western

A	B	C		
—	1	6	**Ambush at Cimarron Pass**	*wes AYC*
—	3	12	**Another Time, Another Place**	*dr A*
—	2	1	**Apache Territory**	*wes AYC*
—	1	3	**Astounding She Monster, The**	*sci AY*
—	1	6	**Attack of the Fifty Foot Woman**	*sci A*
—	4	5	**Attila (Italian)**	*hist-mel-c AY*
—	5	1	**Awakening, The (Italian)**	*dr AY*
—	3	4	**Badman's Country**	*wes AYC*
—	3	3	**Beast of Budapest**	*mel AYC*
—	2	11	**Beautiful but Dangerous (Italian)**	*mus-dr-c A*
—	3	1	**Beggar Student, The (German)**	*mus-com-c AY*
—	2	1	**Big Barrier, The (German)**	*dr-c AY*
—	9	4	**Big Beat, The**	*mus-com AY*
—	2	2	**Bigamist, The (Italian)**	*com A*
—	2	7	**Blood Arrow**	*mel AY*
—	5	3	**Blue Murder at St. Trinian's (British)**	*com AY*
—	3	3	**Bonnie Parker Story, The**	*cri-mel A*
—	3	1	**Brain from Planet Arous, The**	*sci AY*
1	9	1	**Bravados, The**	*wes-c AY*
—	1	6	**Bride and the Beast, The**	*mel A*
—	4	5	**Bride is Much Too Beautiful, The (French)**	*com A*
10	5	2	**Brothers Karamazov, The**	*dr-c A*
—	4	2	**Bullwhip**	*wes-c A*
—	3	3	**Camp on Blood Island, The (British)**	*war-mel AY*
—	7	—	**Campbell's Kingdom (British)**	*mel-c AYC*
—	7	3	**Case Against Brooklyn, The**	*cri-mel AY*
—	9	2	**Case of Dr. Laurent, The (French)**	*dr A*
—	5	5	**Cattle Empire**	*wes-c AY*
—	10	3	**Chase a Crooked Shadow**	*mys-mel AY*
—	6	1	**Cole Younger, Gunfighter**	*wes-c AYC*
—	2	5	**Colossus of New York, The**	*sci-mel AY*
—	4	5	**Confessions of Felix Krull, The (German)**	*nov A*
—	1	2	**Cool and the Crazy, The**	*soc-dr A*
—	1	2	**Cop Hater**	*cri-mel A*
—	9	2	**Count Five and Die (British)**	*war-mel AY*
—	3	4	**Country Music Holiday**	*mus-com AYC*
5	8	4	**Cowboy**	*biog-c AY*
—	8	3	**Crash Landing**	*dr AYC*
—	2	1	**Crazy in the Noodle (French)**	*com A*
—	5	4	**Cross-Up (British)**	*mys-mel AY*
—	3	2	**Cry-Baby Killer, The**	*soc-mel A*
3	10	3	**Cry Terror**	*mys-mel A*
—	3	3	**Curse of the Demon**	*mel AY*
—	2	5	**Dangerous Youth (British)**	*soc-mel AY*
—	2	3	**Deadly Decision (German)**	*war-dr A*
—	8	1	**Demoniaque (French)**	*mys-mel AY*
—	—	6	**Desert Hell**	*mel AYC*
2	6	9	**Desire Under the Elms**	*dr A*
—	—	3	**Diary of a Bad Girl (French)**	*dr A*
—	2	4	**Dragstrip Riot**	*soc-mel A*
—	—	7	**Edge of Fury, The**	*cri-dr A*
—	3	7	**Fiend Without a Face (British)**	*sci-mel A*
—	1	3	**Fighting Wildcats, The (British)**	*mel A*
—	—	3	**Fire Under Her Skin (French)**	*dr YA*
—	2	5	**Flame Barrier, The**	*sci-mel AY*
—	—	3	**Flaming Frontier**	*wes AY*
—	9	1	**Flood Tide**	*dr AY*
—	3	—	**Fly, The**	*sci-mel-c AY*
—	—	3	**Flying Classroom, The (German)**	*com AYC*
—	2	3	**Folies Bergère (French)**	*mus-mel-c A*
—	5	4	**Fort Bowie**	*wes AY*
—	7	3	**Fort Dobbs**	*wes AY*
—	6	2	**Fort Massacre**	*mel-c AYC*
1	6	4	**Fraulein (German)**	*war-dr-c A*
2	11	1	**From Hell to Texas**	*wes-dr-c AYC*
—	2	5	**Gang War**	*cri-mel A*
—	2	1	**Ghost of the China Sea**	*war-mel AYC*
—	2	2	**Giant from the Unknown**	*sci-mel A*
—	3	—	**Gideon of Scotland Yard (British)**	*mys-mel-c AYC*
—	6	9	**Gift of Love, The**	*dr AYC*
7	9	—	**Gigi**	*mus-dr-c A*
—	4	2	**Girl in the Woods**	*cri-mel A*
—	—	10	**Girls on the Loose**	*cri-mel A*
—	9	7	**Goddess, The**	*soc-dr A*
1	4	6	**God's Little Acre**	*dr A*
—	5	5	**Going Steady**	*com A*
—	1	2	**Golfo (Greek)**	*dr A*
—	4	1	**Guendalina (Italian)**	*dr A*
—	—	5	**Gunfire at Indian Gap**	*wes AY*
1	6	2	**Gunman's Walk**	*mel-c A*
—	6	4	**Handle with Care**	*dr AYC*
—	8	2	**Haunted Strangler, The (British)**	*cri-mel A*
—	5	2	**Hell Drivers (British)**	*mel A*
—	1	3	**Hell Ship Mutiny**	*mel AYC*
—	5	2	**Hell's Five Hours**	*mys-mel AY*
1	10	2	**High Cost of Loving, The**	*com A*

A	B	C		
—	4	6	**High Flight (British)**	*war-dr AYC*
—	3	8	**High Hell**	*mel A*
—	3	12	**High School Confidential**	*soc-mel A*
—	2	4	**Hong Kong Affair**	*mys-mel AYC*
2	7	2	**Horror of Dracula (British)**	*mel-c A*
—	2	1	**Horse and Carriage, The (Greek)**	*dr A*
—	4	1	**Hot Car Girl**	*soc-mel A*
1	5	5	**Hot Spell**	*dr A*
3	9	3	**I Accuse (British)**	*dr AY*
—	1	3	**I Bury the Living**	*mys-mel A*
—	5	2	**I Married a Woman**	*com AY*
—	4	1	**Imitation General**	*war-com AY*
—	1	2	**In the Money**	*com AY*
2	8	1	**Indiscreet**	*com-c A*
—	2	4	**Island Women**	*mus-mel A*
—	2	6	**Jet Attack**	*war-mel A*
—	1	5	**Juvenile Jungle**	*cri-mel A*
1	6	1	**Kathy O'**	*com-c A*
2	6	4	**Key, The**	*war-mel A*
—	8	3	**King Creole**	*mus-mel A*
1	6	6	**Kings Go Forth**	*war-dr AY*
—	6	6	**Lafayette Escadrille**	*mel A*
—	4	2	**Last of the Fast Guns, The**	*wes-c AYC*
—	5	4	**Last Paradise, The (Italian)**	*doc-c A*
1	7	5	**Law and Jake Wade, The**	*wes-c AYC*
—	5	8	**Left Handed Gun, The**	*wes A*
—	4	4	**Let's Rock**	*mus-com AYC*
—	3	2	**Life Begins at 17**	*dr A*
—	12	2	**Light in the Forest, The**	*hist-dr-c AYC*
—	1	2	**Lily of the Harbor (Greek)**	*dr A*
—	6	2	**Lineup, The**	*cri-mel AY*
—	3	—	**Littlest Hobo, The**	*dr AYC*
—	—	10	**Live Fast, Die Young**	*cri-mel A*
—	6	—	**Lone Ranger and the City of Lost Gold, The**	*wes-c AYC*
3	9	5	**Long Hot Summer, The**	*mel-c A*
—	1	8	**Lost Lagoon (British)**	*mel A*
—	4	6	**Lovemaker, The (Spanish)**	*dr A*
—	1	2	**Lucky Jim (British)**	*com AY*
—	3	3	**Macabre**	*cri-mel A*
—	4	2	**Machine Gun Kelly**	*cri-mel A*
—	1	8	**Mam'zelle Pigalle (French)**	*com-c A*
—	3	4	**Man from God's Country, The**	*wes-c AYC*
—	3	2	**Man in the Raincoat, The (French)**	*cri-com A*
—	4	6	**Manhunt in the Jungle**	*doc-c AY*
—	7	2	**Maracaibo**	*mel-c A*
5	9	4	**Marjorie Morningstar**	*nov-c A*
2	5	6	**Mark of the Hawk, The**	*soc-mel-c AY*
2	4	—	**Matchmaker, The**	*com AY*
3	11	3	**Merry Andrew**	*mus-com-c AYC*
—	4	4	**Mitsou (French)**	*com-c A*
—	2	1	**Naked Africa**	*trav-c A*
—	2	2	**Naked and the Dead, The**	*war-dr-c AY*
—	6	1	**Naked Earth, The (British)**	*mel A*
—	2	2	**Never Love a Stranger**	*mel A*
—	7	3	**Night Ambush (British)**	*war-mel AY*
—	—	4	**Night of the Demon (British)**	*mys-mel A*
—	1	6	**No Sun in Venice (French)**	*mel-c A*
1	9	3	**No Time for Sergeants**	*war-com AYC*
—	—	4	**Notorious Mr. Monks, The**	*mel A*
1	1	3	**Old Man and the Sea, The**	*dr-c AY*
—	8	3	**One that Got Away, The (British)**	*war-dr AYC*
—	4	4	**Oregon Passage**	*wes-c AY*
—	—	3	**Outcasts of the City**	*war-mel A*
1	6	6	**Paris Holiday**	*com-c AY*
—	2	4	**Poor but Beautiful (Italian)**	*com A*
—	6	6	**Portrait of an Unknown Woman (German)**	*dr A*
4	9	2	**Proud Rebel, The**	*dr-c AYC*
—	5	2	**Quantrill's Raiders**	*wes-c AYC*
1	8	7	**Quiet American, The**	*war-dr AY*
—	2	1	**Rawhide Trail, The**	*wes-mel AYC*
—	6	3	**Return of Dracula, The**	*mel A*
—	4	1	**Revenge of Frankenstein, The (British)**	*sci-mel-c AY*
—	6	—	**Robbery Under Arms (British)**	*mel-c AY*
—	5	2	**Rock-a-bye Baby**	*mus-com-c AYC*
—	9	4	**Rooney (Irish)**	*com A*
2	7	2	**Rouge et Noir (French)**	*dr-c A*
1	11	4	**Run Silent, Run Deep**	*war-dr AYC*
—	2	1	**Rx Murder (British)**	*mys-mel A*
—	—	3	**Sabu and the Magic Ring**	*adv AYC*
1	9	5	**Saddle the Wind**	*wes-c AY*
—	3	1	**Scorcerer's Village, The**	*doc-c A*
—	2	10	**Screaming Mimi**	*cri-mel A*
1	8	6	**Search for Paradise**	*trav-c AYC*
—	3	1	**She Played with Fire (British)**	*mys-mel A*
5	10	—	**Sheepman, The**	*wes-c AYC*
—	2	6	**Ship Was Loaded, The (British)**	*war-com AY*
—	6	2	**Showdown at Boot Hill**	*wes AY*
—	4	—	**Sierra Baron**	*wes-mel-c AYC*
1	6	1	**Snorkel, The (British)**	*cri-mel AY*
6	6	4	**South Pacific**	*mus-dr-c AY*
—	5	—	**South Seas Adventure**	*trav-c AYC*
—	5	2	**Space Children, The**	*sci AYC*
—	8	4	**Spanish Affair, The**	*dr-c AYC*
—	6	9	**St. Louis Blues**	*mus-biog AYC*
2	10	6	**Stage Struck**	*dr-c A*
—	6	3	**Stakeout on Dope Street**	*soc-mel A*
—	2	4	**Steel Bayonet (British)**	*war-mel A*
—	10	5	**Story of Vickie, The (Austrian)**	*biog-c AY*
—	2	4	**Suicide Battalion**	*war-mel AY*
—	7	4	**Summer Love**	*mus-com AY*
—	3	2	**Tarzan's Fight for Life**	*adv-c AYC*
2	10	5	**Teacher's Pet**	*com A*
—	—	4	**Teenage Monster**	*sci AY*
—	—	4	**Teenage Wolf Pack (German)**	*mel A*
5	5	7	**Ten North Frederick**	*dr A*
—	4	2	**There's Always a Price Tag (French)**	*mys-mel A*
—	3	5	**Thing That Couldn't Die, The**	*cri-mel A*
—	6	7	**This Angry Age**	*dr-c A*
1	10	3	**This Happy Feeling**	*com-c AYC*
—	4	5	**Thunder Road**	*cri-mel A*
—	4	4	**Thundering Jets**	*war-dr AYC*
—	3	1	**Time is My Enemy (British)**	*cri-mel AYC*
2	8	4	**Time to Love and a Time to Die, A**	*war-dr-c A*
—	4	8	**Too Much, Too Soon**	*biog A*
—	5	9	**Touch of Evil**	*mel A*
—	3	4	**Toughest Gun in Tombstone**	*wes AYC*
—	6	5	**True Story of Lynn Stuart, The**	*cri-mel AY*
—	2	2	**Twilight for the Gods**	*dr-c A*
—	6	4	**Uncle Vanya**	*dr A*
—	1	3	**Up in Smoke**	*com AYC*
3	8	6	**Vertigo**	*mys-mel-c AY*
—	—	4	**Vicious Breed, The (Swedish)**	*soc-mel A*
—	—	3	**Viking Women and the Sea Serpent**	*adv AY*
3	6	6	**Vikings, The**	*hist-dr-c A*
—	4	6	**Violent Road**	*mel AY*
—	5	—	**Voice in the Mirror**	*soc-dr AY*
—	1	5	**War of the Satellites**	*sci AY*
2	3	—	**White Wilderness**	*doc-c AYC*
—	2	2	**Wife for a Night (Italian)**	*mus-dr A*
—	4	1	**Wild Heritage**	*wes-c AYC*
9	2	1	**Windjammer**	*trav-c AYC*
—	2	3	**Wink of an Eye**	*mys-mel A*
—	1	2	**Wolf Dog**	*mel AYC*
—	3	3	**Young and Wild**	*soc-mel A*
5	6	6	**Young Lions, The**	*war-dr A*
—	7	2	**Your Past is Showing (British)**	*com AY*

The Consumers' Observation Post

(Continued from page 4)

TELEVISION IS HAVING AN ADVERSE EFFECT on the health and vigor of children. According to a report from Toronto, Canada, children who spend too many hours in front of a television screen deteriorate in physical fitness. A health survey of 300 children indicated that the most common fault was a lack of flexibility in the legs and lower back, with distinct arm and abdominal muscle weakness. Half of the boys were unable to do a single "pushup." There was an incidence of about 60 percent posture defects, and many children were obese. Perhaps a solution is for some enterprising advertiser to put on a daily TV health program to encourage small fry to go through setting-up exercises at regular periods throughout the day.

* * *

MORE EFFICIENT APPLIANCES with less trim and better quality, with emphasis on function rather than eye appeal, will in the long run please consumers. That is the comment of J. Gordon Lippincott, head of one of the country's leading industrial design firms. He points out that appliances are so complicated these days that it is necessary to hire too many people to make them work. One solution for this complex problem of servicing that he thinks might eliminate some of the headaches of running the modern home is to rent electric appliances in a package deal with service. This would change the whole concept of marketing and force the manufacturers to turn out simpler machines, since the dealers would have to maintain them.

* * *

U.S. AUTOMOBILES COST TOO MUCH. The editor of Motor magazine discussed in a recent issue the question as to whether Detroit is pricing itself out of business by offering too much car for too much money. The point is also made that union labor's demands are pushing car prices so high that the average purchaser is being shunted into the secondhand and foreign car field. He suggests that American producers seem to have lost sight of an important segment of the market which is not interested in more power, more gadgets, more wheelbase, and more width.

* * *

JUST WHAT DOES MONOSODIUM GLUTAMATE do for food that makes it so widely used? Its promoters are quick to say that it will not disguise poor quality nor change flavor. On the other hand, in setting forth the virtues of their product they point out that it holds the flavor of meat throughout a reasonable serving period in a restaurant and thus overcomes "steam table fatigue." They also suggest that hamburgers or meat patties which cannot be made to order are far better if kept on a steam table in a pan that includes monosodium glutamate in the juices and recommend that if stews and creamed chipped beef remain on the steam table a liberal shake of monosodium glutamate in a small addition of gravy or milk will restore the product's flavor and desirable texture. If that isn't disguising poor quality, we'd like to know what it is.

* * *

BROWN GRASS PLOTS can be dyed green for appearance sake. An application can provide good coloring for about two weeks, according to Dr. Victor B. Youngner, turf grass specialist at the University of California, Los Angeles. In addition to coloring brown winter lawns, grass colorants may be used to tint disease-killed turf or turf brown from lack of water. Dr. Youngner emphasizes, however, that artificially colored grass must be watered occasionally and only enough colorant should be applied to cover the grass with a minimum amount of run-off.

* * *

FABRICS THAT HAVE BEEN TREATED with various finishes to make them crease resistant may irritate the skin and cause dermatitis. According to a study made in Norway, finishes based on the use of formaldehyde were believed to be the cause of eczema in four women and one man; since four of the patients tended to sweat freely, it was suggested this might have been partly responsible for the unpleasant reaction.

WIDESPREAD SPRAYING WITH DDT, particularly from the air, may seriously reduce the fish population in certain areas. According to Neely Turner, State Entomologist for Connecticut, when large areas are treated with DDT and sudden heavy rains occur, DDT may be washed into streams and lakes and kill the insect food of fish. Another drawback, in spraying from the air, is that sudden shifts of wind may divert the spray to areas which are not supposed to be included and so contaminate pasture and forage crops.

* * *

MANY FOOT TROUBLES are due to poorly fitted shoes. The most common ailments resulting from ill-fitting or improper footwear include fallen arches or flat feet, calluses, corns and bunions, according to a Canadian health department. Particularly during childhood and the early teens while the foot is still growing, it is important to secure properly designed and fitted shoes with emphasis on comfort, adequate support, durability, and pliability. Adults should keep in mind that the feet will increase nearly a full shoe size in length during a day's walking and also are likely to swell during hot and humid weather. Socks and stockings should also be long enough for comfort.

* * *

RIPENING TOMATOES that have been picked green from the home garden is usually accomplished by placing them in a sunny window. Now it turns out that it is the heat that does the trick, not the sunlight. The U.S. Department of Agriculture reports that tomatoes ripen best at room temperature or a little below, between 60 and 75°F. They need good light, but at temperatures over 85°F they turn yellow instead of red. Once they have ripened, they will of course keep best in the refrigerator.

* * *

CARPET ADVERTISING IS CAUSING SOME HEADACHES in the basic supply field. Waste nylon from tire cord products, old clothing, and stockings is considered waste nylon and should not be put into carpets advertised as 15 denier virgin nylon carpet. The use of waste nylon from 1-1/2 to 6 denier results in an inferior product, according to DuPont. The crushability, wear resistance, and dyeability which are among the major advantages of virgin nylon carpet are lost in the use of waste nylon. The tests made by one fiber producer indicated that on cut-pile carpeting the dyeing was more streaky, coverage was poorer, and bounce was inert in carpets using waste nylon, reports Home Furnishings Daily. The better elements in the industry are afraid that low-grade nylon carpets will give the entire industry a bad name with consumers.

* * *

WANT TO RIDE IN A MERRY '01 OLDSMOBILE? Reproductions complete with tiller steering and klaxon horns are being turned out in Ft. Lauderdale, Florida, by the American Air Products Corp. which makes a few concessions to modern engineering advances by fitting its kerosene headlights with GE sealed-beam lights, adding a taillight and stop light, along with a Delco Remy electric starter and generator to replace the hand crank, which is now a parking brake in disguise. According to The Wall Street Journal, the little buggy will chug along at 35 miles an hour; it gets 65 miles to the gallon, and sells for $1200.

* * *

GOOD OLD-FASHIONED PEANUT BUTTER that contains no hydrogenated oil is hard to find these days. Food manufacturers apparently are convinced that consumers prefer "shelf life" or keeping quality rather than flavor and other factors. Those who have followed with interest recent studies that appear to indicate the undesirability of consuming hydrogenated fats have endeavored to search out foods completely free from such chemically-modified substances. We shall be pleased to report brands of peanut butter in various localities free from hydrogenated oil as they are brought to our attention. For peanut butter fanciers in eastern Pennsylvania, Henry L. Landis, Souderton, Pa., puts out a creamy type peanut butter of excellent flavor, made of No. 1 peanuts and salt, and no other ingredients, at 39 cents for a 12-ounce jar. Grocers in that area will undoubtedly be able to obtain supplies for discriminating customers.

Phonograph Records

BY WALTER F. GRUENINGER

Please Note: The first symbol applies to quality of interpretation, the second to fidelity of recording.

D'Albert: *Tiefland.* Brouwenstijn, Schöffler, Hopf, Protero, etc., under Moralt. 4 sides, Epic SC 6025. $9.98. The opera has been described as "a German Carmen." First performed in 1903, still heard in Germany. Superb cast and direction. Top-notch recording. Best set of this opera. AA AA

Bach: *Brandenburg Concerti* (complete). Pro Arte Chamber Orchestra of Munich under Redel. 4 sides, Westminster XWN 2219. $9.96. Bach's finest compositions for orchestra are here—six works. The small number of musicians produce a true chamber music sound. The playing is clear, nicely tone-colored. There is an overfancy harpsichord improvisation in No. 3, and some of the tempi are brisk. But on the whole this is a highly commendable set, provided the small size of the ensemble doesn't bother you. If it does, compare it with Bach Guild 540/2. AA AA

Berlin by Lombardo. Guy Lombardo and His Royal Canadians. Capitol T 1019. $3.98. A medley of 40 Irving Berlin hits played with simplicity and delightful, easy rhythm. "A Pretty Girl is Like a Melody," "Always," "Easter Parade," "Some Sunny Day," etc. AA AA

Brahms: *Piano Sonatas Nos. 1* and *2* and *Scherzo.* Eugene List (piano). Vanguard VRS 1016. $4.98. Brahms' early piano compositions are rarely heard for he had not yet mastered the form of writing for this instrument. List plays these sonatas skillfully and he is well recorded. AA AA

Brahms: *Symphony No. 3* and *Tragic Overture.* Chicago Symphony under Reiner. RCA Victor LM 2209. $4.98. Reiner's success in conducting these beautiful works seems to stem from his ability to keep things moving forward with correct tempo and expression of detail. There's no better disk of the "Third" in the Schwann catalog. Well recorded. AA AA

Cimarosa: *Sonatas for Harpsichord* (32). Veyron-Lacroix (harpsichord). Westminster XWN 18698. $4.98. Exquisite, brilliant, and pleasing short pieces composed about 1800, which remind one of Scarlatti. Well played and recorded. AA AA

Gounod: *Symphony No. 2* & **Bizet:** *Jeux d'enfants.* Lamoureux Orchestra under Markevitch. Decca DL 9982. $3.98. Interesting, novelty disk. The symphony has found no niche in the repertory for it looks backward, rather than forward. Yet, its light melodies appeal. Bizet's charming little suite fills out the disk. Both pieces are very well played and satisfactorily recorded. AA A

Haydn: *Oboe Concerto.* Evelyn Rothwell, with members of the Hallé Orchestra under Barbirolli & **Dvorak:** *Serenade* (Op. 44). Members of the same orchestra. Mercury MG 50041. $4.98. Biggest surprise of the month was the elegance and spirit of this music so rarely heard and so successfully performed here. The Dvorak piece is scored for winds. The tone of the oboe soloist is singular and captivating. Extraordinarily fine sound. AA AA

Haydn: *Symphonies Nos. 97* and *99.* Cleveland Orchestra under Szell. Epic LC 3455. $3.98. Sparkling symphonies. Szell has a flair for Haydn. He leads his men in a crisp performance which is very well recorded. AA AA

Francescatti Plays Kreisler (violin). Columbia ML 5255. $3.98. These delightful morceaux include "Caprice Viennois," "Liebeslied," "Liebesfreud," "Tamborin Chinois" but, strangely, not "Schön Rosmarin" as stated on the label. Instead, we hear Schumann's "Prophet Bird." The playing is virile and persuasive but without the ultimate charm that Kreisler once revealed. Yet, Francescatti is very good. Excellent recording. AA AA

Parsi: *Divertimenti del Sur.* Members of the Casals Festival Orchestra under Katims and *Sonata in G for Piano.* Jesus Maria Sanroma (piano). Cook 1061. $4.98. Mildly sophisticated music with Latin American overtones composed by a contemporary Puerto Rican. The performances are exceptionally good and so is the recording. AA AA

Reger: *Variations and Fugue on a Theme by Mozart* & **Mozart:** *Serenade No. 6.* Berlin Philharmonic under Böhm. Decca DL 9979. $3.98. The Reger is a lovely work easily assimilated on first hearing; the early Mozart is pure gold. Both are expressively played and spaciously recorded though not with widest range. AA A

Rossini: *The Barber of Seville.* Callas, Gobbi, Alva, etc., under Galliera. 6 sides, Angel 3559. $15.94. Very likely the most popular opera of the 19th century and still a joy to hear. Gobbi as Figaro presents a sensitive characterization, though not always in the best voice imaginable. Callas as Rosina is not everyone's idea of Rosina, though she does well in the florid parts. The rest of the cast is acceptable. Spirited direction. First rate orchestra. No recorded *Barber* is perfect. Overall, this is as good as any. A AA

Stamitz: *Orchestral Trio, Concerto for Oboe, Concerto for Clarinet, Sinfonia.* Tottcher, Michaels, Heiler, Münchener Kammerorchester under Gorvin. Decca Archive ARC 3092. $5.95. Though Stamitz was one of the foremost innovators of the 18th century, his works are seldom heard now. Most absorbing of those played here are the concertos. The playing throughout is done with finesse, and the recording, though uneven, is satisfactory. AA A

Vincent: *Symphony in D* & **Dello Joio:** *Variations, Chaconne,* and *Finale.* Philadelphia Orchestra under Ormandy. Columbia ML 5263. $3.98. Conservative modern works well understood by these superb players. Vincent's seems to be the more imaginative, arresting, and mature. Excellent recording. AA AA

Wagner: *Tannhaeuser Overture and Venusberg Music,* and *Die Goetterdaemmerung: Daybreak* and *Rhine Journey,* and *Flying Dutchman Overture.* Berlin Philharmonic under Kempe. Angel 35574. $4.98. Glowing performance and rich recording of popular Wagnerian orchestral music. AA AA

Dream Dust. Gordon Jenkins and His Chorus. Capitol T 1023. $3.98. Tasteful arrangements attractively sung by a small mixed chorus: "Dream Dust," "Yours," "Never Let Me Go," "I'll Remember April," etc. Set in Latin rhythms. AA AA

Lawrence Welk Presents Pete Fountain. Coral CRL 57200. $3.98. Naive arrangements featuring the clarinet. Designed with a firm beat for dancing. Included are "When My Baby Smiles At Me," "Hindustan," "On the Alamo," etc. Principally for Welk admirers. AA AA

Sorrento. Richard Tucker (tenor). Columbia ML 5258. $3.98. Though he is an American, Tucker is often called "the finest Italian tenor of our time." Here he sings "Lolita," "O Sole Mio," "La Danza," and similar numbers in superb voice. AA AA

The Virtuoso Gypsy. Edi Csoka and His Gypsy Orchestra. Vanguard VRS 9033. $4.98. A favorite musical ensemble of a Salzburg Inn plays 14 numbers: "Czardas," "Rumanian Nightingale," "Sina Hora," etc. Likely to please anyone who enjoys a gypsy dinner ensemble. AA AA

* * *

Great Recordings of the Century. Angel has brought out a sheaf of disks presenting famous performances of the past. With each is a first-rate brochure. The three I have heard stand out for performance though not for sound. Included are Kreisler playing the Beethoven Violin Concerto (COLH 11), Chaliapin singing scenes from Russian Opera (COLH 100) and Claudia Muzio singing arias from Italian Opera (COLC 101). Each disk is priced at $5.95.

● OFF THE EDITOR'S CHEST

Wanted—better motion pictures for the family trade

"CHOOSINESS—a spreading epidemic" reads a headline in Variety, leading trade journal in the entertainment field. It appears that motion picture theater owners and promoters are experiencing a severe depression because of the "spreading menace of choosiness among ticket buyers." To quote the journal, "The public has plenty of mediocre stuff for free on television, so when it pays it presumes to demand consistent—not occasional—quality. This is murder on the not-quite-good-enough releases."

There used to be an old saying that "there is nothing the matter with motion pictures that a good motion picture won't cure." This apparently is still true, for exhibitors report that the movie business is as good as the pictures. "Around the World in 80 Days," for example, brought a Seattle, Washington, theater three times as much attendance as any picture offered in any previous year, according to The Wall Street Journal.

One trade publication reports that the public's entertainment habits have changed, and today's audience shops for a top star or an appealing story. This view is confirmed by an interview with a family in Detroit, Michigan, who were selected as a typical American movie-going family and asked what they liked about movies and what their suggestions were for improvement. They reported that they didn't go to see just "any old picture" and that, furthermore, they considered competing attractions (bowling, roller skating, sports, and television) before deciding whether to go to the movies or not. With two teenagers in the family, they tried to pick shows that all four would enjoy.

There is some complaint that second-run and small-town theaters do not obtain the top rating films that are shown at the downtown theaters where prices are higher, parking is more difficult and expensive, and where it may often be impossible to get tickets on the spur of the moment.

Another criticism is that there are not enough family pictures. Some object to the seemingly endless cycle of films dramatizing the horrors and futility of war that have become monotonous, even if they are highly rated by the critics for technical excellence. Others object to the trend of glorifying characters with low ethical and moral standards, making a heel the hero, and presenting the details of reprehensible conduct so attractively that it is a temptation for youngsters to try out some of the techniques so graphically delineated.

It is fashionable for leading motion picture critics to commend the industry for its courage in presenting what they are pleased to call "adult themes" on the screen—social problems, juvenile delinquency, race relations, prostitution, and drug addiction. Pictures that offer good, clean family fun and entertainment—even Westerns, unless they are what is known as "adult Westerns"—are tagged by critics as "escapist entertainment," a term of disparagement in intellectual circles.

Since the motion picture is an important factor in the mass communications field, its present low state is deplored by those who consider the American film an important source of art, entertainment, and education. Efforts have been made to promote the use of current motion pictures in the school curriculum. Dubuque, Iowa, for example, has a successful junior high school project that includes cooperation between the local exhibitor and the teachers to credit attendance at particular films that have educational value as part of a class assignment. Study plans for historical pictures, those based on classical plays and novels, operas, and other films of educational interest are also provided by Joint Estimates of Current Entertainment Films, 28 W. 44 St., New York 36.

These efforts may perhaps stimulate an increased interest in motion pictures in the younger generation, but a considerable improvement in quality and a larger number of themes suitable for family viewing are indicated if the neighborhood theater is to enjoy greater patronage. Not long ago one of our subscribers complained that he couldn't understand why our ratings of motion pictures showed such a small percentage of favorable ratings. He felt that there was something wrong with our technique of evaluation. The sad truth is that there is what the exhibitor calls "a shortage of product" and the result is that everything that is made in the motion picture studios is shown, whether it is good, bad, or indifferent. The exhibitor has little to choose from, hence the motion picture fan for the most part stays home to look at old films on television.

Primarily, Consumers' Research bases its A, B, and C ratings on entertainment value of a picture. This is the factor in which we think our family audiences are primarily interested. If the reviewer takes a dim view of the entertainment value but lauds the photography, attractiveness of the scenery, or excellence of the character

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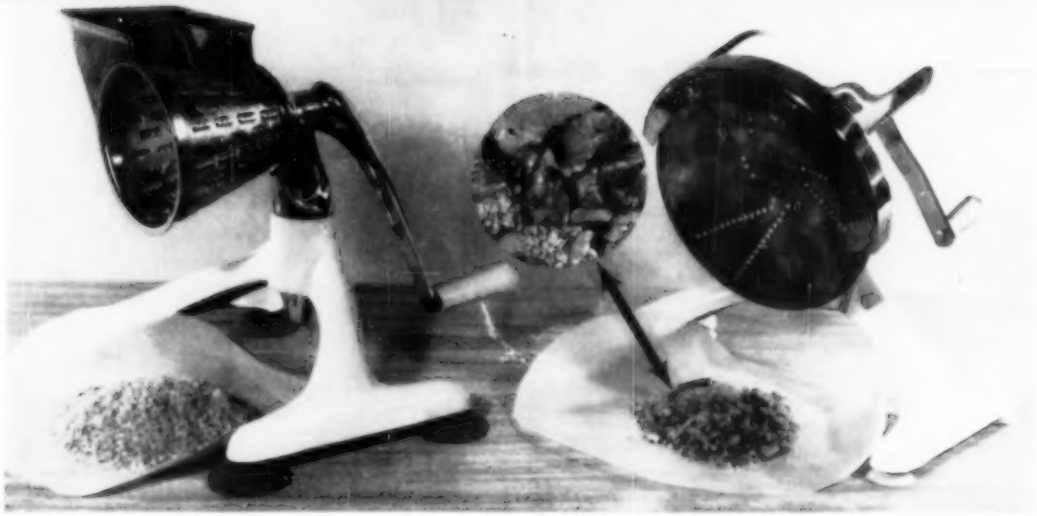

Vegetable shredders and meat grinders

MOST WOMEN are interested in ways to make household chores easier. It is probably for this reason that there are so many different vegetable shredders or so-called "salad makers" in various sizes, shapes, and with numerous brand names found on the market in recent years. Or maybe it is simply because advertising on television and the spiels of pitchmen at county fairs are so persuasive. One manufacturer claims to make up to 2000 of the devices a day.

These salad makers have either cones or disks with projections that grate, shred, string, or slice vegetables, fruits, and nuts. Combination vegetable shredders and meat grinders are also sold, having a single base and two different hoppers with attachments. Vegetables are pressed downward against the grating or slicing disk or cone on some of the salad makers, pushed horizontally into the path of revolving disks on others. It is easier, as a rule, to use the first kind—to push down with one hand while turning the handle with the other. No one, however, can expect to use a salad maker very easily and deftly at first. It takes some practice!

Unless a "pusher" is used, any one of these devices tested is dangerous. The housewife who does not use a pusher is likely to grate or slice her fingers accidentally, especially when working with some small foods like nuts.

The *A-Recommended* salad maker proved to do a good job in tests which included grating nuts and slicing or grating vegetables, and was judged reasonably safe to use. The other devices, while satisfactory for some foods, were either more hazardous to use or not so versatile. The photograph shows two of the devices and the results of one of the tests—grating walnuts. Some nuts slipped through without being grated by the *Magic Hostess*, shown at the right. *Rival Deluxe Kitcheneer* is at the left.

The meat grinders of the *Rival Kitcheneer* and *Magic Hostess* combination devices were used for grinding stew beef. The grinders of both did a good job, but the *Magic Hostess* worked less satisfactorily; because the mounting of the hopper to the base was less secure, the hopper wiggled in the socket as the handle was turned.

All of the devices studied by Consumers' Research were judged a bother to clean. The grating and slicing parts collected food that was difficult to remove, partly because the parts have such sharp edges, and partly because of the many small, hard-to-reach places.

A. Recommended

Mouli (Mouli Mfg. Corp., 91 Broadway, Jersey City, N.J.; Montgomery Ward's Cat. No. 86—5112) $4.49, plus postage. Sold with five disks for slicing, chopping, and medium, fine, and superfine shredding. Made of tinned steel with three rubber-tipped legs, two of which fold back against the body for storage. A metal food "pusher" is a part of the appliance. Judged easy to assemble and relatively easy to clean. Combines a good degree of safety, with good to fair performance. Had a relatively small hopper.

B. Intermediate

Rival Kitcheneer, Heavy-Duty Deluxe Model No. 377 (Rival Mfg. Co., Kansas City 29) $18.95. "A combination shredder, slicer, grater—meat grinder and food chopper," combining *Rival 371 Grind-O-Mat* and *671 Shred-O-Mat*. (Shown at the left in the illustration.) Had salad

(*Continued on page 20*)

COMING IN FUTURE BULLETINS

Cameras and photographic equipment

Miniature cameras
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8-mm. motion picture cameras
Polaroid cameras
Exposure meters

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Caloric	Norge
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Kelvinator	RCA Whirlpool
Maytag	Speed Queen

Electric ranges

Admiral	Kelvinator
Frigidaire	Norge
General Electric	Philco
Hotpoint	Westinghouse

Combination storm windows

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